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THE COMPLETE
MATHEMATICAL AND GENERAL
NAVIGATION TABLES,

INCLUDING EVERY TABLE REQUIRED WITH THE NAUTICAL ALMANAC IN FINDING THE

LATITUDE AND LONGITUDE :

WITH AN EXPLANATION OF THEIR CONSTRUCTION, USE, AND APPLICATION TO

NAVIGATION AND NAUTICAL ASTRONOMY,
TRIGONOMETRY, DIALLING, GUNNERY, ETC. ETC.

BY THOMAS KERIGAN, R.N.

AUTHOR OF "THE YOUNG NAVIGATOR'S GUIDE," ETC.

SECOND EDITION ;

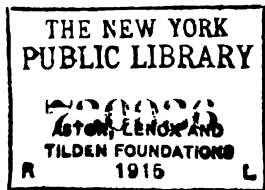
CAREFULLY REVISED, AND ADAPTED TO THE IMPROVED ELEMENTS INTRODUCED INTO THE
NAUTICAL ALMANAC.

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IN TWO VOLUMES.
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of the given degree, minute, and next *less* tenth second; from which let the proportional corresponding to the odd seconds, at the bottom of the page, be subtracted, and the result be the true value of such arch.

6.—If the arch be expressed in minutes and seconds, its value is to be found in the manner as directed in the second member of the last Rule, substituting, however, the word *degree* for “ given degree.”

In like manner may the value of the log. co-secant, the log. co-sine, and the log. co-tangent of any given arch be very readily taken out; observing to read fifths of seconds for tenths seconds; except in the last 10 pages of the log. co-secants, and in the first 10 pages of the log. co-sines. And, generally, the same rules are to be observed in taking out the values of arcs or angles that may be found at the bottom of the Tables of Natural Versed Sines, Logarithmic Sines, Secants, and Tangents.

See Note, page 57; Rules, pages 58—60:—Note, page 90; Rules, pages 91—92:—Note, page 94; Rules, pages 94—95, of the first volume.

The converse of the above Rules, that is, the finding of the arch corresponding to a given versed sine, &c. &c. is obvious, and therefore need not be insisted upon in this place, particularly since it has been already given in pages 60, 92, and 95, of Volume I.

navigation, he will doubtlessly be induced, in the event of touching at any of the places enumerated in the foregoing list, to avail himself of every favourable opportunity that may occur for taking the necessary observations, so as to establish the correct geographical positions of those places.—And when it is remembered that the latitude of Sheerness (a place so much frequented by naval officers) has not as yet been satisfactorily determined,—that a place so adjacent to the coast of England as St. Quintin has an error of 115 miles in its longitude, as laid down by different surveyors,—that La Conchée is placed upon opposite sides of the same meridian, and that the same islands are placed upon opposite sides of the equator; there will then be strong presumptive grounds for doubting the truth of many other positions: the consideration which ought to act as a warning voice to seamen against placing anything like implicit faith in the old or original charts and surveys of any maritime country whatever.

Remark.—To the original list of geographical discrepancies I have now to add the island of Pantellaria. This is a small island in the Mediterranean Sea, adjacent to the coast of Libya Africa; it being only about 53 miles to the eastward of Tunis. When Robert Ingram, Esq. was in command of His Majesty's ship *Ætna*, in the year 1830, he found the position of Pantellaria to be considerably to the eastward of that which is assigned to it in all our nautical tables; and thus, he is of opinion that the correct longitude of the *Fort* is $11^{\circ} 54' 29''$ East instead of $11^{\circ} 3' 40''$, as stated in page 620 of this volume. This shows that *one of the longitudes must be erroneous* to the value of $50' 49''$ or 51 miles in round numbers; which is rather alarming, seeing that the whole island does not measure more than about 17 or 18 miles circumference. However, as the island in question is only 177 miles distant from Malta, the direction of North $70^{\circ} 49'$ West; it is to be hoped that some of our ships of war will afford the *Master*, or some other competent person, an opportunity of verifying the result of Captain Ingram's observation.

THE TABLES.

TO CONVERT LONGITUDE, OR DEGREES INTO TIME, AND CONVERSELY.

Degr.	H. M.	Degr.	H. M.	Degr.	H. M.	Degr.	H. M.	Degr.	H. M.	Degr.	H. M.
Min.	M. S.	Min.	M. S.	Min.	M. S.	Min.	M. S.	Min.	M. S.	Min.	M. S.
Sec.	S. T.	Sec.	S. T.	Sec.	S. T.	Sec.	S. T.	Sec.	S. T.	Sec.	S. T.
1	0. 4	61	4. 4	121	8. 4	181	12. 4	241	16. 4	301	20. 4
2	0. 8	62	4. 8	122	8. 8	182	12. 8	242	16. 8	302	20. 8
3	0. 12	63	4. 12	123	8. 12	183	12. 12	243	16. 12	303	20. 12
4	0. 16	64	4. 16	124	8. 16	184	12. 16	244	16. 16	304	20. 16
5	0. 20	65	4. 20	125	8. 20	185	12. 20	245	16. 20	305	20. 20
6	0. 24	66	4. 24	126	8. 24	186	12. 24	246	16. 24	306	20. 24
7	0. 28	67	4. 28	127	8. 28	187	12. 28	247	16. 28	307	20. 28
8	0. 32	68	4. 32	128	8. 32	188	12. 32	248	16. 32	308	20. 32
9	0. 36	69	4. 36	129	8. 36	189	12. 36	249	16. 36	309	20. 36
10	0. 40	70	4. 40	130	8. 40	190	12. 40	250	16. 40	310	20. 40
11	0. 44	71	4. 44	131	8. 44	191	12. 44	251	16. 44	311	20. 44
12	0. 48	72	4. 48	132	8. 48	192	12. 48	252	16. 48	312	20. 48
13	0. 52	73	4. 52	133	8. 52	193	12. 52	253	16. 52	313	20. 52
14	0. 56	74	4. 56	134	8. 56	194	12. 56	254	16. 56	314	20. 56
15	1. 0	75	5. 0	135	9. 0	195	13. 0	255	17. 0	315	21. 0
16	1. 4	76	5. 4	136	9. 4	196	13. 4	256	17. 4	316	21. 4
17	1. 8	77	5. 8	137	9. 8	197	13. 8	257	17. 8	317	21. 8
18	1. 12	78	5. 12	138	9. 12	198	13. 12	258	17. 12	318	21. 12
19	1. 16	79	5. 16	139	9. 16	199	13. 16	259	17. 16	319	21. 16
20	1. 20	80	5. 20	140	9. 20	200	13. 20	260	17. 20	320	21. 20
21	1. 24	81	5. 24	141	9. 24	201	13. 24	261	17. 24	321	21. 24
22	1. 28	82	5. 28	142	9. 28	202	13. 28	262	17. 28	322	21. 28
23	1. 32	83	5. 32	143	9. 32	203	13. 32	263	17. 32	323	21. 32
24	1. 36	84	5. 36	144	9. 36	204	13. 36	264	17. 36	324	21. 36
25	1. 40	85	5. 40	145	9. 40	205	13. 40	265	17. 40	325	21. 40
26	1. 44	86	5. 44	146	9. 44	206	13. 44	266	17. 44	326	21. 44
27	1. 48	87	5. 48	147	9. 48	207	13. 48	267	17. 48	327	21. 48
28	1. 52	88	5. 52	148	9. 52	208	13. 52	268	17. 52	328	21. 52
29	1. 56	89	5. 56	149	9. 56	209	13. 56	269	17. 56	329	21. 56
30	2. 0	90	6. 0	150	10. 0	210	14. 0	270	18. 0	330	22. 0
31	2. 4	91	6. 4	151	10. 4	211	14. 4	271	18. 4	331	22. 4
32	2. 8	92	6. 8	152	10. 8	212	14. 8	272	18. 8	332	22. 8
33	2. 12	93	6. 12	153	10. 12	213	14. 12	273	18. 12	333	22. 12
34	2. 16	94	6. 16	154	10. 16	214	14. 16	274	18. 16	334	22. 16
35	2. 20	95	6. 20	155	10. 20	215	14. 20	275	18. 20	335	22. 20
36	2. 24	96	6. 24	156	10. 24	216	14. 24	276	18. 24	336	22. 24
37	2. 28	97	6. 28	157	10. 28	217	14. 28	277	18. 28	337	22. 28
38	2. 32	98	6. 32	158	10. 32	218	14. 32	278	18. 32	338	22. 32
39	2. 36	99	6. 36	159	10. 36	219	14. 36	279	18. 36	339	22. 36
40	2. 40	100	6. 40	160	10. 40	220	14. 40	280	18. 40	340	22. 40
41	2. 44	101	6. 44	161	10. 44	221	14. 44	281	18. 44	341	22. 44
42	2. 48	102	6. 48	162	10. 48	222	14. 48	282	18. 48	342	22. 48
43	2. 52	103	6. 52	163	10. 52	223	14. 52	283	18. 52	343	22. 52
44	2. 56	104	6. 56	164	10. 56	224	14. 56	284	18. 56	344	22. 56
45	3. 0	105	7. 0	165	11. 0	225	15. 0	285	19. 0	345	23. 0
46	3. 4	106	7. 4	166	11. 4	226	15. 4	286	19. 4	346	23. 4
47	3. 8	107	7. 8	167	11. 8	227	15. 8	287	19. 8	347	23. 8
48	3. 12	108	7. 12	168	11. 12	228	15. 12	288	19. 12	348	23. 12
49	3. 16	109	7. 16	169	11. 16	229	15. 16	289	19. 16	349	23. 16
50	3. 20	110	7. 20	170	11. 20	230	15. 20	290	19. 20	350	23. 20
51	3. 24	111	7. 24	171	11. 24	231	15. 24	291	19. 24	351	23. 24
52	3. 28	112	7. 28	172	11. 28	232	15. 28	292	19. 28	352	23. 28
53	3. 32	113	7. 32	173	11. 32	233	15. 32	293	19. 32	353	23. 32
54	3. 36	114	7. 36	174	11. 36	234	15. 36	294	19. 36	354	23. 36
55	3. 40	115	7. 40	175	11. 40	235	15. 40	295	19. 40	355	23. 40
56	3. 44	116	7. 44	176	11. 44	236	15. 44	296	19. 44	356	23. 44
57	3. 48	117	7. 48	177	11. 48	237	15. 48	297	19. 48	357	23. 48
58	3. 52	118	7. 52	178	11. 52	238	15. 52	298	19. 52	358	23. 52
59	3. 56	119	7. 56	179	11. 56	239	15. 56	299	19. 56	359	23. 56
60	4. 0	120	8. 0	180	12. 0	240	16. 0	300	20. 0	360	24. 0
Degr.	H. M.	Degr.	H. M.	Degr.	H. M.	Degr.	H. M.	Degr.	H. M.	Degr.	H. M.
Min.	M. S.	Min.	M. S.	Min.	M. S.	Min.	M. S.	Min.	M. S.	Min.	M. S.
Sec.	S. T.	Sec.	S. T.	Sec.	S. T.	Sec.	S. T.	Sec.	S. T.	Sec.	S. T.

TABLE II.
Depression of the Horizon.

No.	Height of the Eye in Feet.		Dip.		No.	Height of the Eye in Feet.		Dip.		No.	Height of the Eye in Feet.		Dip.	
	ft.	in.	ft.	in.		ft.	in.	ft.	in.		ft.	in.		
1	0	58	15	3.42	29	5	10	45	6.27	160	12	6		
2	1	21	16	3.50	30	5	15	50	6.46	170	12	29		
3	1	40	17	3.57	31	5	20	55	7.66	180	12	51		
4	1	56	18	4.4	32	5	25	60	7.24	200	13	30		
5	2	9	19	4.11	33	5	30	65	7.42	220	14	6		
6	2	21	20	4.17	34	5	35	70	8.1	240	14	42		
7	2	33	21	4.24	35	5	40	80	8.34	260	15	24		
8	2	44	22	4.30	36	5	45	90	9.6	280	16	0		
9	2	53	23	4.36	37	5	50	100	9.34	300	16	35		
10	3	2	24	4.42	38	5	55	110	10.3	320	17	7		
11	3	10	25	4.47	39	5	59	120	10.30	340	17	39		
12	3	19	26	4.52	40	6	4	130	10.56	360	18	10		
13	3	27	27	4.58	41	6	8	140	11.20	400	19	9		
14	3	36	28	5.5	42	6	12	150	11.42	500	21	24		

TABLE III.

Dip of the Horizon, at different distances from the observer.

Distance of the Shore.	Height of the Eye above the Sea, in Feet.								
	5 Dip	10 Dip	15 Dip	20 Dip	25 Dip	30 Dip	35 Dip	40 Dip	
Miles									
0 1/4	11	23	34	45	57	68	79	90	
0 1/2	6	11	17	22	28	34	39	45	
0 3/4	4	8	12	15	19	23	27	30	
1	3	6	9	12	15	17	20	23	
1 1/4	3	5	7	9	12	14	16	19	
1 1/2	3	4	6	8	10	12	14	15	
1 3/4	2	3	5	7	8	10	12	13	
2	2	3	5	6	8	10	11	12	
2 1/4	2	3	5	6	7	8	9	10	
2 1/2	2	3	4	5	6	7	8	8	
2 3/4	2	3	4	5	6	6	7	7	
3	2	3	4	4	5	5	6	6	
3 1/4	2	3	4	4	5	5	6	6	
3 1/2	2	3	4	4	5	5	6	6	
3 3/4	2	3	4	4	5	5	6	6	
4	2	3	4	4	5	5	6	6	
4 1/4	2	3	4	4	5	5	6	6	
4 1/2	2	3	4	4	5	5	6	6	
4 3/4	2	3	4	4	5	5	6	6	
5	2	3	4	4	5	5	6	6	
5 1/4	2	3	4	4	5	5	6	6	
5 1/2	2	3	4	4	5	5	6	6	
5 3/4	2	3	4	4	5	5	6	6	
6	2	3	4	4	5	5	6	6	

TABLE IV.

Augmentation of the Moon's Semi-diameter.

Moon's App. Altitude.	Moon's Horizontal Semidiameter.					
	14. 30.	15. 0	15. 30	16. 0	16. 30	17. 0
"	"	"	"	"	"	"
0	0	0	0	0	0	0
3	0	0	1	1	1	1
6	1	1	2	2	2	2
9	2	2	2	2	3	3
12	3	3	3	3	4	4
15	4	4	4	4	5	5
18	4	4	5	5	5	6
21	5	5	6	6	6	7
24	5	6	6	6	7	7
27	6	6	7	7	8	8
30	7	7	8	8	9	9
33	7	8	8	9	10	10
36	8	9	9	10	10	11
39	8	9	10	10	11	12
42	9	10	10	11	12	12
45	9	10	11	12	12	13
48	10	11	12	12	13	14
51	10	11	12	13	14	14
54	11	12	13	13	14	15
57	11	12	13	14	15	16
60	12	13	14	14	15	16
63	12	13	14	15	16	17
66	12	13	14	15	16	17
69	13	14	15	15	16	17
72	13	14	15	16	17	18
75	13	14	15	16	17	18
78	13	14	15	16	17	18
81	13	14	15	16	17	18
84	13	14	15	16	18	19
90	14	15	16	17	18	19
0	"	"	"	"	"	"

Moon's App. Altitude.	Moon's Horizontal Semidiameter.					
	14. 30.	15. 0	15. 30	16. 0	16. 30	17. 0
"	"	"	"	"	"	"

TABLE V.
Contraction of the Semidiameter of the Sun and Moon.

[illegible]

TABLE VI.—*Parallax of the Planets in Altitude.*

Planet's App. Alt.		Planet's Horizontal Parallax.																												Planet's App. Alt.	
°	'	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	°	'											
0	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	0	1												
10	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	10	1												
20	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	20	1												
30	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	30	1												
36	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	36	1												
42	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	42	1												
48	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	48	1												
54	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	54	1												
60	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	60	1												
66	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	66	1												
72	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	72	1												
78	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	78	1												
84	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	84	1												
90	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	90	1												

TABLE X.

To find the Latitude by an Altitude of the North Polar Star.

Right Ascension of the Meridian in Sidereal Time.		Correction of Polar Star's Alt.	Annual Variation of Correction.	Proportional parts of Correction for the intermediate Mins. of Sidereal Time.					Right Ascension of the Meridian in Sidereal Time.	
				1 ^m	2 ^m	3 ^m	4 ^m	5 ^m		
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>° ' "</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>h. m. s.</i>	<i>h. m. s.</i>
1. 1.5	1. 1. 5	1.33.55	-19.44	0. 00	0. 00	0. 00	0. 00	0. 00	13. 1.5	13. 1. 5
1.10.0	0.52.10	1.33.51	-19.14	0. 00	10. 10	10. 20	20. 2		13.10.0	12.52.10
1.20.0	0.42.10	1.33.36	-18.79	0. 20	30. 30	50. 60	8		13.20.0	12.42.10
1.30.0	0.32.10	1.33.10	-18.44	0. 30	50. 80	10.10	0.13		13.30.0	12.32.10
1.40.0	0.22.10	1.32.34	-18.03	0. 40	70.11	0.14	0.18		13.40.0	12.22.10
1.50.0	0.12.10	1.31.47	-17.60	0. 50	90.14	0.19	0.24		13.50.0	12.12.10
2. 0.0	0. 2.10	1.30.50	-17.12	0. 60	110.17	0.23	0.29		14. 0.0	12. 2.10
2.10.0	23.52.10	1.29.42	-16.61	0. 70	140.20	0.27	0.34		14.10.0	11.52.10
2.20.0	23.42.10	1.28.24	-16.05	0. 80	160.23	0.31	0.39		14.20.0	11.42.10
2.30.0	23.32.10	1.26.56	-15.48	0. 90	180.26	0.35	0.44		14.30.0	11.32.10
2.40.0	23.22.10	1.25.18	-14.89	0.10	0.20	0.29	0.39	0.49	14.40.0	11.22.10
2.50.0	23.12.10	1.23.30	-14.28	0.11	0.22	0.32	0.43	0.54	14.50.0	11.12.10
3. 0.0	23. 2.10	1.21.33	-13.62	0.12	0.23	0.35	0.47	0.59	15. 0.0	11. 2.10
3. 5.0	22.57.10	1.20.31	-13.30	0.12	0.25	0.37	0.50	"	15. 5.0	10.57.10
3.10.0	22.52.10	1.19.27	-12.97	0.13	0.26	0.37	0.51	"	15.10.0	10.52.10
3.15.0	22.47.10	1.18.20	-12.62	0.13	0.27	0.40	0.54	"	15.15.0	10.47.10
3.20.0	22.42.10	1.17.11	-12.26	0.14	0.28	0.41	0.55	"	15.20.0	10.42.10
3.25.0	22.37.10	1.16. 0	-11.86	0.14	0.28	0.43	0.57	"	15.25.0	10.37.10
3.30.0	22.32.10	1.14.47	-11.48	0.15	0.29	0.44	0.58	"	15.30.0	10.32.10
3.35.0	22.27.10	1.13.31	-11.13	0.15	0.30	0.46	1. 1	"	15.35.0	10.27.10
3.40.0	22.22.10	1.12.14	-10.74	0.15	0.31	0.46	1. 2	"	15.40.0	10.22.10
3.45.0	22.17.10	1.10.54	-10.38	0.16	0.32	0.48	1. 4	"	15.45.0	10.17.10
3.50.0	22.12.10	1. 9.32	-10.03	0.16	0.33	0.49	1. 6	"	15.50.0	10.12.10
3.55.0	22. 7.10	1. 8. 9	-9.63	0.17	0.33	0.50	1. 7	"	15.55.0	10. 7.10
4. 0.0	22. 2.10	1. 6.43	-9.21	0.17	0.34	0.52	1. 9	"	16. 0.0	10. 2.10
4. 5.0	21.57.10	1. 5.16	-8.80	0.17	0.35	0.52	1.10	"	16. 5.0	9.57.10
4.10.0	21.52.10	1. 3.46	-8.39	0.18	0.36	0.54	1.12	"	16.10.0	9.52.10
4.15.0	21.47.10	1. 2.15	-7.98	0.18	0.36	0.55	1.13	"	16.15.0	9.47.10
4.20.0	21.42.10	1. 0.42	-7.56	0.19	0.37	0.56	1.14	"	16.20.0	9.42.10
4.25.0	21.37.10	0.59. 8	-7.15	0.19	0.38	0.56	1.15	"	16.25.0	9.37.10
4.30.0	21.32.10	0.57.31	-6.73	0.19	0.39	0.58	1.17	"	16.30.0	9.32.10
4.35.0	21.27.10	0.55.53	-6.30	0.20	0.39	0.59	1.18	"	16.35.0	9.27.10
4.40.0	21.22.10	0.54.14	-5.88	0.20	0.40	0.59	1.19	"	16.40.0	9.22.10
4.45.0	21.17.10	0.52.32	-5.46	0.20	0.41	1. 11.21	"	"	16.45.0	9.17.10
4.50.0	21.12.10	0.50.50	-5.03	0.20	0.41	1. 11.22	"	"	16.50.0	9.12.10
4.55.0	21. 7.10	0.49. 6	-4.60	0.21	0.42	1. 21.23	"	"	16.55.0	9. 7.10
5. 0.0	21. 2.10	0.47.20	-4.18	0.21	0.42	1. 31.25	"	"	17. 0.0	9. 2.10
5. 5.0	20.57.10	0.45.33	-3.76	0.21	0.43	1. 41.26	"	"	17. 5.0	8.57.10
5.10.0	20.52.10	0.43.45	-3.29	0.22	0.43	1. 51.26	"	"	17.10.0	8.52.10
5.15.0	20.47.10	0.41.56	-2.82	0.22	0.44	1. 51.27	"	"	17.15.0	8.47.10
5.20.0	20.42.10	0.40. 6	-2.35	0.22	0.44	1. 61.28	"	"	17.20.0	8.42.10
5.25.0	20.37.10	0.38.14	-1.92	0.22	0.45	1. 71.30	"	"	17.25.0	8.37.10
5.30.0	20.32.10	0.36.21	-1.49	0.23	0.45	1. 81.30	"	"	17.30.0	8.32.10
5.35.0	20.27.10	0.34.27	-1.06	0.23	0.45	1. 81.31	"	"	17.35.0	8.27.10
5.40.0	20.22.10	0.32.32	-0.63	0.23	0.46	1. 91.32	"	"	17.40.0	8.22.10
5.45.0	20.17.10	0.30.36	-0.22	0.23	0.46	1.101.33	"	"	17.45.0	8.17.10
5.50.0	20.12.10	0.28.40	+ 0.28	0.23	0.46	1.101.33	"	"	17.50.0	8.12.10
5.55.0	20. 7.10	0.26.42	+ 0.71	0.21	0.47	1.111.34	"	"	17.55.0	8. 7.10
6. 0.0	20. 2.10	0.24.44	+ 1.19	0.24	0.47	1.111.34	"	"	18. 0.0	8. 2.10
6. 5.0	19.57.10	0.22.45	+ 1.62	0.24	0.48	1.111.35	"	"	18. 5.0	7.57.10
6.10.0	19.52.10	0.20.46	+ 2.09	0.24	0.48	1.111.35	"	"	18.10.0	7.52.10
6.15.0	19.47.10	0.18.46	+ 2.42	0.24	0.48	1.121.36	"	"	18.15.0	7.47.10
6.20.0	19.42.10	0.16.45	+ 2.95	0.24	0.48	1.131.37	"	"	18.20.0	7.42.10
6.25.0	19.37.10	0.14.44	+ 3.42	0.24	0.48	1.131.37	"	"	18.25.0	7.37.10
6.30.0	19.32.10	0.12.42	+ 3.85	0.24	0.49	1.131.38	"	"	18.30.0	7.32.10
6.35.0	19.27.10	0.10.40	+ 4.27	0.24	0.49	1.131.38	"	"	18.35.0	7.27.10
6.40.0	19.22.10	0. 8.38	+ 4.69	0.24	0.49	1.131.38	"	"	18.40.0	7.22.10
6.45.0	19.17.10	0. 6.35	+ 5.12	0.25	0.49	1.141.38	"	"	18.45.0	7.17.10
6.50.0	19.12.10	0. 4.32	+ 5.55	0.25	0.49	1.141.38	"	"	18.50.0	7.12.10
6.55.0	19. 7.10	0. 2.30	+ 6.01	0.25	0.49	1.141.38	"	"	18.55.0	7. 7.10
7. 1.5	19. 1. 5	0. 0. 0	+ 6.49	0.25	0.50	1.151.40	"	"	19. 1.5	7. 1. 5
Right Ascension of the Meridian in Sidereal Time.		Correction of Polar Star's Alt.	Annual Variation of Correction.	Proportional parts of Correction for the intermediate Mins. of Sidereal Time.					Right Ascension of the Meridian in Sidereal Time.	
<i>h. m. s.</i>	<i>h. m. s.</i>	<i>° ' "</i>	<i>"</i>	1 ^m	2 ^m	3 ^m	4 ^m	5 ^m	<i>h. m. s.</i>	<i>h. m. s.</i>

When the Right Ascension of the Meridian falls in either of these two columns, the Correction will be *Subtractive*.

When the Right Ascension of the Meridian falls in either of these two columns, the Correction will be *Additive*.

TABLE XI.—Correction of the Latitude deduced from the preceding Table. 7

Right Asc. of Meridian or Sidereal Time.	Approximate Latitude.																Right Asc. of Meridian or Sidereal Time.	
	0°	10°	20°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°			
<i>h. m. s.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>
1.5	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1. 1. 5
30.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.26	0.32. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0. 2. 10
30.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.23	23.32. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.23	23. 2. 10
30.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.22	22.32. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.22	22. 2. 10
20.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.21	21.42. 10
40.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.21	21.22. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.21	21. 2. 10
20.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.20	20.42. 10
40.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.20	20.22. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.20	20. 2. 10
20.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.19	19.42. 10
40.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.19	19.22. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.19	19. 2. 10
20.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18	18.42. 10
40.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18	18.22. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18	18. 2. 10
20.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.17	17.42. 10
40.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.17	17.22. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.17	17. 2. 10
20.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.16	16.42. 10
40.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.16	16.22. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.16	16. 2. 10
30.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.15	15.32. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.15	15.2. 10
30.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.14	14.32. 10
0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.14	14. 2. 10
20.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.13	13.32. 10
1.5	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.13. 1. 5

TABLE XII.—The Mean Sun's Approximate Right Ascension.

Days.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Days.
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	
1	18.43	20.45	22.35	0.37	2.36	4.38	6.36	8.38	10.41	12.39	14.41	16.39	1
2	18.47	20.49	22.39	0.41	2.40	4.42	6.40	8.42	10.45	12.43	14.45	16.43	2
3	18.51	20.53	22.43	0.45	2.44	4.46	6.44	8.46	10.49	12.47	14.49	16.47	3
4	18.54	20.57	22.47	0.49	2.48	4.50	6.48	8.50	10.53	12.51	14.53	16.51	4
5	18.58	21.1	22.51	0.53	2.52	4.54	6.52	8.54	10.56	12.55	14.57	16.55	5
6	19.2	21.5	22.55	0.57	2.55	4.58	6.56	8.58	11.0	12.59	15.1	16.59	6
7	19.6	21.9	22.59	1.1	2.59	5.2	7.0	9.2	11.4	13.3	15.5	17.3	7
8	19.10	21.12	23.3	1.5	3.3	5.6	7.4	9.6	11.8	13.7	15.9	17.7	8
9	19.14	21.16	23.7	1.9	3.7	5.9	7.8	9.10	11.12	13.10	15.13	17.11	9
10	19.18	21.20	23.11	1.13	3.11	5.13	7.12	9.14	11.16	13.14	15.17	17.15	10
11	19.22	21.24	23.15	1.17	3.15	5.17	7.16	9.18	11.20	13.18	15.21	17.19	11
12	19.26	21.28	23.19	1.21	3.19	5.21	7.20	9.22	11.24	13.22	15.25	17.23	12
13	19.30	21.32	23.23	1.25	3.23	5.25	7.24	9.26	11.28	13.26	15.28	17.27	13
14	19.34	21.36	23.26	1.29	3.27	5.29	7.27	9.30	11.32	13.30	15.32	17.31	14
15	19.38	21.40	23.30	1.33	3.31	5.33	7.31	9.34	11.36	13.34	15.36	17.35	15
16	19.42	21.44	23.34	1.37	3.35	5.37	7.35	9.38	11.40	13.38	15.40	17.39	16
17	19.46	21.48	23.38	1.41	3.39	5.41	7.39	9.42	11.44	13.42	15.44	17.43	17
18	19.50	21.52	23.42	1.44	3.43	5.45	7.43	9.45	11.48	13.46	15.48	17.46	18
19	19.54	21.56	23.46	1.48	3.47	5.49	7.47	9.49	11.52	13.50	15.52	17.50	19
20	19.58	22.0	23.50	1.52	3.51	5.53	7.51	9.53	11.56	13.54	15.56	17.54	20
21	20.1	22.4	23.54	1.56	3.55	5.57	7.55	9.57	12.0	13.58	16.0	17.58	21
22	20.5	22.8	23.58	2.0	3.59	6.1	7.59	10.1	12.3	14.2	16.4	18.2	22
23	20.9	22.12	0.2	2.4	4.2	6.5	8.3	10.5	12.7	14.6	16.8	18.6	23
24	20.13	22.16	0.6	2.8	4.6	6.9	8.7	10.9	12.11	14.10	16.12	18.10	24
25	20.17	22.19	0.10	2.12	4.10	6.13	8.11	10.13	12.15	14.14	16.16	18.14	25
26	20.21	22.23	0.14	2.16	4.14	6.17	8.15	10.17	12.19	14.18	16.20	18.18	26
27	20.25	22.27	0.18	2.20	4.18	6.20	8.19	10.21	12.23	14.21	16.24	18.22	27
28	20.29	22.31	0.22	2.24	4.22	6.24	8.23	10.25	12.27	14.25	16.28	18.26	28
29	20.33	22.33	0.26	2.28	4.26	6.28	8.27	10.29	12.31	14.29	16.32	18.30	29
30	20.37	"	0.30	2.32	4.30	6.32	8.31	10.33	12.35	14.33	16.36	18.34	30
31	20.41	"	0.34	"	4.34	"	8.35	10.37	"	14.37	"	18.38	31

EQUATIONS TO EQUAL ALTITUDES, *First part.*

Lat.		Interval between the Observations.																								Lat.	
		h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s		
0	0	2.40	3.20	4.00	4.40	5.20	6.00	6.40	7.20	8.00	8.40	9.20	10.00	10.40	11.20	12.00	0	0	0	0	0	0	0	0	0	0	
1	1	0.12	0.12	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.15	0.16	0.16	0.17	0.18	0.19	1	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.15	0.16	
2	2	0.25	0.25	0.25	0.26	0.26	0.27	0.27	0.28	0.29	0.30	0.31	0.32	0.34	0.36	0.38	2	0.25	0.25	0.25	0.26	0.26	0.27	0.27	0.28	0.29	
3	3	0.37	0.37	0.38	0.38	0.39	0.40	0.41	0.42	0.44	0.45	0.47	0.49	0.51	0.54	0.56	3	0.37	0.37	0.38	0.38	0.39	0.40	0.41	0.42	0.44	
4	4	0.49	0.50	0.50	0.51	0.52	0.53	0.55	0.56	0.58	1.00	1.01	1.03	1.05	1.08	1.10	4	0.49	0.50	0.50	0.51	0.52	0.53	0.55	0.56	0.58	
5	5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
6	6	1.14	1.14	1.16	1.17	1.18	1.20	1.22	1.25	1.27	1.30	1.34	1.38	1.42	1.48	1.54	6	1.14	1.14	1.16	1.17	1.18	1.20	1.22	1.25	1.27	
7	7	1.26	1.27	1.28	1.30	1.32	1.34	1.36	1.39	1.42	1.46	1.50	1.54	2.00	2.06	2.13	7	1.26	1.27	1.28	1.30	1.32	1.34	1.36	1.39	1.42	
8	8	1.39	1.40	1.41	1.43	1.45	1.47	1.50	1.53	1.57	2.01	2.06	2.11	2.17	2.24	2.32	8	1.39	1.40	1.41	1.43	1.45	1.47	1.50	1.53	1.57	
9	9	1.51	1.52	1.54	1.56	1.58	2.01	2.04	2.08	2.12	2.16	2.22	2.28	2.34	2.42	2.51	9	1.51	1.52	1.54	1.56	1.58	2.01	2.04	2.08	2.12	
10	10	2.4	2.5	2.7	2.9	2.12	2.15	2.18	2.22	2.27	2.32	2.38	2.44	2.52	3.01	3.10	10	2.4	2.5	2.7	2.9	2.12	2.15	2.18	2.22	2.27	
11	11	2.16	2.18	2.20	2.22	2.25	2.29	2.32	2.37	2.42	2.48	2.54	3.01	3.10	3.19	3.30	11	2.16	2.18	2.20	2.22	2.25	2.29	2.32	2.37	2.42	
12	12	2.29	2.31	2.33	2.36	2.39	2.42	2.46	2.51	2.57	3.03	3.10	3.18	3.27	3.38	3.50	12	2.29	2.31	2.33	2.36	2.39	2.42	2.46	2.51	2.57	
13	13	2.42	2.44	2.46	2.49	2.52	2.56	3.01	3.06	3.12	3.19	3.26	3.35	3.45	3.56	4.09	13	2.42	2.44	2.46	2.49	2.52	2.56	3.01	3.06	3.12	
14	14	2.55	2.57	3.00	3.03	3.06	3.10	3.15	3.21	3.27	3.35	3.43	3.52	4.03	4.15	4.29	14	2.55	2.57	3.00	3.03	3.06	3.10	3.15	3.21	3.27	
15	15	3.8	3.10	3.13	3.16	3.20	3.25	3.30	3.36	3.43	3.51	4.00	4.10	4.21	4.34	4.49	15	3.8	3.10	3.13	3.16	3.20	3.25	3.30	3.36	3.43	
16	16	3.31	3.24	3.27	3.30	3.34	3.39	3.45	3.51	3.58	4.07	4.16	4.27	4.40	4.54	5.10	16	3.31	3.24	3.27	3.30	3.34	3.39	3.45	3.51	3.58	
17	17	3.35	3.37	3.40	3.44	3.48	3.53	3.59	4.06	4.14	4.23	4.33	4.45	4.58	5.13	5.30	17	3.35	3.37	3.40	3.44	3.48	3.53	3.59	4.06	4.14	
18	18	3.48	3.51	3.54	3.58	4.03	4.08	4.14	4.22	4.30	4.40	4.50	5.03	5.17	5.33	5.51	18	3.48	3.51	3.54	3.58	4.03	4.08	4.14	4.22	4.30	
19	19	4.2	4.4	4.8	4.12	4.17	4.23	4.30	4.37	4.46	4.56	5.08	5.21	5.36	5.52	6.12	19	4.2	4.4	4.8	4.12	4.17	4.23	4.30	4.37	4.46	
20	20	4.15	4.18	4.22	4.27	4.32	4.38	4.45	4.53	5.03	5.13	5.25	5.39	5.55	6.13	6.33	20	4.15	4.18	4.22	4.27	4.32	4.38	4.45	4.53	5.03	
21	21	4.29	4.33	4.36	4.41	4.47	4.53	5.01	5.09	5.19	5.30	5.43	5.58	6.14	6.33	6.55	21	4.29	4.33	4.36	4.41	4.47	4.53	5.01	5.09	5.19	
22	22	4.44	4.47	4.51	4.56	5.02	5.09	5.16	5.26	5.36	5.48	5.61	5.76	6.04	6.25	6.47	22	4.44	4.47	4.51	4.56	5.02	5.09	5.16	5.26	5.36	
23	23	4.58	5.01	5.06	5.11	5.17	5.24	5.32	5.42	5.53	6.05	6.19	6.36	6.54	7.15	7.38	23	4.58	5.01	5.06	5.11	5.17	5.24	5.32	5.42	5.53	
24	24	5.12	5.16	5.21	5.26	5.32	5.40	5.49	5.59	6.10	6.23	6.38	6.55	7.14	7.36	7.61	24	5.12	5.16	5.21	5.26	5.32	5.40	5.49	5.59	6.10	
25	25	5.27	5.31	5.36	5.41	5.48	5.56	6.05	6.16	6.28	6.41	6.57	7.14	7.35	7.58	8.24	25	5.27	5.31	5.36	5.41	5.48	5.56	6.05	6.16	6.28	
26	26	5.42	5.46	5.51	5.57	6.04	6.12	6.22	6.33	6.46	6.60	6.76	7.05	7.35	7.65	8.00	26	5.42	5.46	5.51	5.57	6.04	6.12	6.22	6.33	6.46	
27	27	5.58	6.02	6.07	6.13	6.20	6.29	6.39	6.50	7.02	7.19	7.36	7.55	8.17	8.42	9.10	27	5.58	6.02	6.07	6.13	6.20	6.29	6.39	6.50	7.02	
28	28	6.13	6.18	6.23	6.29	6.37	6.46	6.56	7.08	7.22	7.38	7.55	8.15	8.38	8.65	9.04	28	6.13	6.18	6.23	6.29	6.37	6.46	6.56	7.08	7.22	
29	29	6.29	6.34	6.39	6.46	6.54	7.03	7.14	7.27	7.41	7.57	8.16	8.37	8.60	8.87	9.29	29	6.29	6.34	6.39	6.46	6.54	7.03	7.14	7.27	7.41	
30	30	6.45	6.50	6.56	7.03	7.11	7.21	7.32	7.45	7.60	7.77	8.06	8.28	8.58	9.23	10.23	30	6.45	6.50	6.56	7.03	7.11	7.21	7.32	7.45	7.60	
31	31	7.2	7.7	7.13	7.20	7.29	7.39	7.51	7.64	7.80	8.00	8.37	8.57	9.20	9.46	10.49	31	7.2	7.7	7.13	7.20	7.29	7.39	7.51	7.64	7.80	
32	32	7.18	7.24	7.30	7.38	7.47	7.57	7.68	7.83	8.04	8.28	8.65	8.91	9.42	10.00	11.15	32	7.18	7.24	7.30	7.38	7.47	7.57	7.68	7.83	8.04	
33	33	7.36	7.41	7.48	7.55	7.63	7.76	7.89	8.03	8.29	8.43	8.79	9.01	9.41	10.00	11.31	33	7.36	7.41	7.48	7.55	7.63	7.76	7.89	8.03	8.29	
34	34	7.53	7.59	8.06	8.14	8.24	8.35	8.48	8.63	8.91	9.01	9.30	9.41	10.00	10.58	11.31	34	7.53	7.59	8.06	8.14	8.24	8.35	8.48	8.63	8.91	
35	35	8.11	8.17	8.24	8.33	8.43	8.55	8.69	8.84	9.24	9.42	10.00	10.26	10.52	11.23	11.57	35	8.11	8.17	8.24	8.33	8.43	8.55	8.69	8.84	9.24	
36	36	8.30	8.36	8.43	8.52	9.02	9.15	9.29	9.45	10.00	10.25	10.50	11.17	11.48	12.24	13.05	36	8.30	8.36	8.43	8.52	9.02	9.15	9.29	9.45	10.00	
37	37	8.49	8.55	9.02	9.12	9.23	9.35	9.50	10.07	10.26	10.48	11.14	11.42	12.12	12.52	13.34	37	8.49	8.55	9.02	9.12	9.23	9.35	9.50	10.07	10.26	
38	38	9.8	9.15	9.22	9.32	9.43	9.57	10.12	10.29	10.50	11.12	11.38	12.08	12.42	13.20	14.04	38	9.8	9.15	9.22	9.32	9.43	9.57	10.12	10.29	10.50	
39	39	9.28	9.35	9.43	9.53	10.05	10.18	10.34	10.52	11.13	11.37	12.04	12.35	13.09	13.49	14.35	39	9.28	9.35	9.43	9.53	10.05	10.18	10.34	10.52	11.13	
40	40	9.49	9.56	10.04	10.14	10.26	10.41	10.57	11.16	11.38	12.02	12.30	13.02	13.38	14.19	15.06	40	9.49	9.56	10.04	10.14	10.26	10.41	10.57	11.16	11.38	
41	41	10.10	10.17	10.26	10.37	10.49	11.04	11.21	11.40	12.03	12.28	12.57	13.30	14.07	14.50	15.39	41	10.10	10.17	10.26	10.37	10.49	11.04	11.21	11.40	12.03	
42	42	10.32	10.39	10.48	10.59	11.12	11.28	11.45	12.05	12.28	12.55	13.25	13.59	14.38	15.22	16.12	42	10.32	10.39	10.48	10.59	11.12	11.28	11.45	12.05	12.28	
43	43	10.54	11.01	11.11	11.23	11.36	11.52	12.10	12.31	12.55	13.23	13.54	14.29	15.09	15.55	16.47	43	10.54	11.01	11.11	11.23	11.36	11.52	12.10	12.31	12.55	
44	44	11.18	11.25	11.35	11.47	12.01	12.18	12.36	12.58	13.23	13.51	14.23	15.00	15.41	16.29	17.23	44	11.18	11.25	11.35	11.47	12.01	12.18	12.36	12.58	13.23	
45	45	11.42	11.50	12.00	12.12	12.27	12.44	13.03	13.26																		

TO REDUCE THE SUN'S LONGITUDE, RIGHT ASCENSION, AND DECLINATION, AND, ALSO, THE EQUATION OF TIME, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Variation in 24 hours.																Longitude of the Ship or place.
Appar. time past Noon.	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	20"	30"	40"	50"	0' to 15'	
Hours	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	
Min.	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	11. 111	
Sec.	111. V	111. V	111. V	111. V	111. V	111. V	111. V	111. V	111. V	111. V	111. V	111. V	111. V	111. V	111. V	
0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	0. 0.0	
1	0. 2.5	0. 5.0	0. 7.5	0. 10.0	0. 12.5	0. 15.0	0. 17.5	0. 20.0	0. 22.5	0. 25.0	0. 27.5	0. 30.0	0. 32.5	0. 35.0	0. 37.5	
2	0. 5.0	0. 10.0	0. 15.0	0. 20.0	0. 25.0	0. 30.0	0. 35.0	0. 40.0	0. 45.0	0. 50.0	0. 55.0	0. 60.0	0. 65.0	0. 70.0	0. 75.0	
3	0. 7.5	0. 15.0	0. 22.5	0. 30.0	0. 37.5	0. 45.0	0. 52.5	1. 0.0	1. 7.5	1. 15.0	1. 22.5	1. 30.0	1. 37.5	1. 45.0	1. 52.5	
4	0. 10.0	0. 20.0	0. 30.0	0. 40.0	0. 50.0	1. 0.0	1. 10.0	1. 20.0	1. 30.0	1. 40.0	1. 50.0	2. 0.0	2. 10.0	2. 20.0	2. 30.0	
5	0. 12.5	0. 25.0	0. 37.5	0. 50.0	1. 2.5	1. 15.0	1. 27.5	1. 40.0	1. 52.5	2. 5.0	2. 17.5	2. 30.0	2. 42.5	2. 55.0	3. 7.5	
6	0. 15.0	0. 30.0	0. 45.0	1. 0.0	1. 15.0	1. 30.0	1. 45.0	2. 0.0	2. 15.0	2. 30.0	2. 45.0	3. 0.0	3. 15.0	3. 30.0	3. 45.0	
7	0. 17.5	0. 35.0	0. 52.5	1. 10.0	1. 30.0	1. 50.0	2. 10.0	2. 30.0	2. 50.0	3. 10.0	3. 30.0	3. 50.0	4. 10.0	4. 30.0	4. 50.0	
8	0. 20.0	0. 40.0	1. 0.0	1. 20.0	1. 40.0	2. 0.0	2. 20.0	2. 40.0	3. 0.0	3. 20.0	3. 40.0	4. 0.0	4. 20.0	4. 40.0	5. 0.0	
9	0. 22.5	0. 45.0	1. 7.5	1. 30.0	1. 52.5	2. 15.0	2. 37.5	3. 0.0	3. 22.5	3. 45.0	4. 7.5	4. 30.0	4. 52.5	5. 15.0	5. 37.5	
10	0. 25.0	0. 50.0	1. 15.0	1. 40.0	2. 5.0	2. 30.0	2. 55.0	3. 30.0	3. 55.0	4. 30.0	5. 5.0	6. 30.0	6. 55.0	7. 30.0	7. 55.0	
11	0. 27.5	0. 55.0	1. 22.5	1. 50.0	2. 17.5	2. 42.5	3. 17.5	3. 42.5	4. 17.5	4. 42.5	5. 17.5	5. 42.5	6. 17.5	6. 42.5	7. 17.5	
12	0. 30.0	1. 0.0	1. 30.0	2. 0.0	2. 30.0	3. 0.0	3. 30.0	4. 0.0	4. 30.0	5. 0.0	5. 30.0	6. 0.0	6. 30.0	7. 0.0	7. 30.0	
13	0. 32.5	1. 1.0	1. 37.5	2. 10.0	2. 42.5	3. 15.0	3. 47.5	4. 20.0	4. 52.5	5. 25.0	6. 0.0	6. 15.0	6. 40.0	7. 10.0	7. 35.0	
14	0. 35.0	1. 5.0	1. 45.0	2. 20.0	2. 55.0	3. 30.0	4. 5.0	4. 40.0	5. 15.0	5. 40.0	6. 10.0	6. 35.0	7. 0.0	7. 25.0	7. 50.0	
15	0. 37.5	1. 15.0	1. 52.5	2. 30.0	3. 7.5	3. 45.0	4. 22.5	5. 0.0	5. 27.5	6. 5.0	6. 30.0	7. 0.0	7. 25.0	7. 50.0	8. 25.0	
16	0. 40.0	1. 20.0	2. 0.0	2. 40.0	3. 20.0	4. 0.0	4. 40.0	5. 20.0	6. 0.0	6. 40.0	7. 20.0	8. 0.0	8. 20.0	8. 40.0	9. 0.0	
17	0. 42.5	1. 25.0	2. 7.5	2. 50.0	3. 32.5	4. 15.0	4. 57.5	5. 40.0	6. 22.5	7. 5.0	7. 30.0	8. 10.0	8. 35.0	9. 10.0	9. 35.0	
18	0. 45.0	1. 30.0	2. 15.0	3. 0.0	3. 45.0	4. 30.0	5. 15.0	6. 0.0	6. 45.0	7. 30.0	8. 15.0	9. 0.0	9. 25.0	10. 0.0	10. 25.0	
19	0. 47.5	1. 35.0	2. 22.5	3. 10.0	3. 57.5	4. 45.0	5. 32.5	6. 20.0	7. 7.5	7. 55.0	8. 40.0	9. 25.0	10. 10.0	10. 35.0	11. 0.0	
20	0. 50.0	1. 40.0	2. 30.0	3. 20.0	4. 10.0	5. 0.0	5. 50.0	6. 40.0	7. 30.0	8. 20.0	9. 10.0	10. 0.0	10. 30.0	11. 20.0	12. 0.0	
21	0. 52.5	1. 45.0	2. 37.5	3. 30.0	4. 22.5	5. 15.0	6. 7.5	7. 0.0	7. 52.5	8. 45.0	9. 35.0	10. 25.0	11. 15.0	12. 5.0	12. 30.0	
22	0. 55.0	1. 50.0	2. 45.0	3. 40.0	4. 35.0	5. 30.0	6. 25.0	7. 20.0	8. 15.0	9. 10.0	10. 0.0	10. 30.0	11. 20.0	12. 10.0	12. 40.0	
23	0. 57.5	1. 55.0	2. 52.5	3. 50.0	4. 47.5	5. 45.0	6. 42.5	7. 40.0	8. 37.5	9. 35.0	10. 30.0	11. 25.0	12. 20.0	13. 15.0	13. 10.0	
24	1. 0.0	2. 0.0	3. 0.0	4. 0.0	5. 0.0	6. 0.0	7. 0.0	8. 0.0	9. 0.0	10. 0.0	11. 0.0	12. 0.0	13. 0.0	14. 0.0	15. 0.0	
25	1. 2.5	2. 5.0	3. 7.5	4. 10.0	5. 12.5	6. 15.0	7. 17.5	8. 20.0	9. 22.5	10. 25.0	11. 27.5	12. 30.0	13. 32.5	14. 35.0	15. 37.5	
26	1. 5.0	2. 10.0	3. 15.0	4. 20.0	5. 25.0	6. 30.0	7. 35.0	8. 40.0	9. 45.0	10. 50.0	11. 55.0	12. 60.0	13. 65.0	14. 70.0	15. 75.0	
27	1. 7.5	2. 15.0	3. 22.5	4. 30.0	5. 37.5	6. 45.0	7. 52.5	8. 60.0	9. 67.5	10. 75.0	11. 82.5	12. 90.0	13. 97.5	14. 105.0	15. 112.5	
28	1. 10.0	2. 20.0	3. 30.0	4. 40.0	5. 50.0	6. 60.0	7. 70.0	8. 80.0	9. 90.0	10. 100.0	11. 110.0	12. 120.0	13. 130.0	14. 140.0	15. 150.0	
29	1. 12.5	2. 25.0	3. 37.5	4. 50.0	6. 2.5	7. 15.0	8. 27.5	9. 40.0	10. 52.5	11. 65.0	12. 77.5	13. 90.0	14. 102.5	15. 115.0	16. 127.5	
30	1. 15.0	2. 30.0	3. 45.0	5. 0.0	6. 15.0	7. 30.0	8. 45.0	9. 60.0	10. 75.0	11. 90.0	12. 105.0	13. 120.0	14. 135.0	15. 150.0	16. 165.0	
31	1. 17.5	2. 35.0	3. 52.5	5. 10.0	6. 27.5	7. 45.0	9. 2.5	10. 20.0	11. 37.5	12. 55.0	13. 72.5	14. 90.0	15. 107.5	16. 125.0	17. 142.5	
32	1. 20.0	2. 40.0	4. 0.0	5. 20.0	6. 40.0	7. 60.0	9. 0.0	10. 40.0	11. 60.0	12. 80.0	13. 100.0	14. 120.0	15. 140.0	16. 160.0	17. 180.0	
33	1. 22.5	2. 45.0	4. 7.5	5. 30.0	6. 52.5	8. 15.0	9. 37.5	11. 0.0	12. 22.5	13. 45.0	14. 67.5	15. 90.0	16. 112.5	17. 135.0	18. 157.5	
34	1. 25.0	2. 50.0	4. 15.0	5. 40.0	7. 0.0	8. 30.0	9. 55.0	11. 20.0	12. 45.0	14. 10.0	15. 35.0	16. 60.0	17. 85.0	18. 110.0	19. 135.0	
35	1. 27.5	2. 55.0	4. 22.5	5. 50.0	7. 17.5	8. 45.0	10. 12.5	11. 40.0	13. 7.5	14. 35.0	15. 60.0	16. 85.0	17. 110.0	18. 135.0	19. 160.0	
36	1. 30.0	3. 0.0	4. 30.0	6. 0.0	7. 30.0	9. 0.0	10. 30.0	12. 0.0	13. 30.0	15. 0.0	16. 30.0	17. 60.0	18. 90.0	19. 120.0	20. 150.0	
37	1. 32.5	3. 5.0	4. 37.5	6. 10.0	7. 42.5	9. 15.0	10. 47.5	12. 20.0	13. 52.5	15. 25.0	16. 50.0	17. 75.0	18. 100.0	19. 125.0	20. 150.0	
38	1. 35.0	3. 10.0	4. 45.0	6. 20.0	7. 55.0	9. 30.0	11. 5.0	12. 40.0	14. 15.0	15. 50.0	17. 25.0	18. 50.0	19. 75.0	20. 100.0	21. 125.0	
39	1. 37.5	3. 15.0	4. 52.5	6. 30.0	8. 7.5	9. 45.0	11. 22.5	13. 0.0	14. 37.5	16. 15.0	17. 40.0	18. 65.0	19. 90.0	20. 115.0	21. 140.0	
40	1. 40.0	3. 20.0	5. 0.0	6. 40.0	8. 20.0	10. 0.0	11. 40.0	13. 30.0	15. 0.0	16. 40.0	18. 30.0	20. 0.0	21. 40.0	23. 0.0	24. 40.0	
41	1. 42.5	3. 25.0	5. 7.5	6. 50.0	8. 32.5	10. 15.0	11. 57.5	13. 40.0	15. 22.5	17. 5.0	19. 30.0	21. 15.0	22. 45.0	24. 30.0	25. 15.0	
42	1. 45.0	3. 30.0	5. 15.0	7. 0.0	8. 45.0	10. 30.0	12. 15.0	14. 0.0	15. 45.0	17. 30.0	19. 15.0	21. 0.0	22. 30.0	24. 15.0	25. 0.0	
43	1. 47.5	3. 35.0	5. 22.5	7. 10.0	8. 57.5	10. 45.0	12. 32.5	14. 20.0	16. 7.5	17. 55.0	19. 40.0	21. 25.0	23. 10.0	24. 5.0	25. 0.0	
44	1. 50.0	3. 40.0	5. 30.0	7. 20.0	9. 10.0	11. 0.0	12. 50.0	14. 40.0	16. 30.0	18. 20.0	20. 10.0	22. 0.0	23. 50.0	25. 40.0	26. 30.0	
45	1. 52.5	3. 45.0	5. 37.5	7. 30.0	9. 22.5	11. 15.0	13. 7.5	15. 0.0	16. 52.5	18. 45.0	20. 37.5	22. 30.0	24. 22.5	26. 15.0	27. 7.5	
46	1. 55.0	3. 50.0	5. 45.0	7. 40.0	9. 35.0	11. 30.0	13. 25.0	15. 30.0	17. 15.0	19. 10.0	21. 5.0	23. 0.0	24. 50.0	26. 40.0	27. 30.0	
47	1. 57.5	3. 55.0	5. 52.5	7. 50.0	9. 47.5	11. 45.0	13. 42.5	15. 40.0	17. 37.5	19. 35.0	21. 30.0	23. 25.0	25. 20.0	27. 15.0	28. 10.0	
48	2. 0.0	4. 0.0	6. 0.0	8. 0.0	10. 0.0	12. 0.0	14. 0.0	16. 0.0	18. 0.0	20. 0.0	22. 0.0	24. 0.0	26. 0.0	28. 0.0	30. 0.0	
49	2. 2.5	4. 5.0	6. 7.5	8. 10.0	10. 12.5	12. 15.0	14. 17.5	16. 20.0	18. 22.5	20. 25.0	22. 27.5	24. 30.0	26. 32.5	28. 35.0	30. 37.5	
50	2. 5.0	4. 10.0	6. 15.0	8. 20.0	10. 25.0	12. 30.0	14. 35.0	16. 40.0	18. 45.0	20. 50.0	22. 55.0	24. 60.0	26. 65.0	28. 70.0	30. 75.0	
51	2. 7.5	4. 15.0	6. 22.5	8. 30.0	10. 37.5	12. 45.0	14. 52.5	17. 0.0	19. 7.5	21. 15.0	23. 22.5	25. 30.0	27. 37.5	29. 45.0	31. 52.5	
52	2. 10.0	4. 20.0	6. 30.0	8. 40.0	10. 50.0	13. 0.0	15. 10.0	17. 20.0	19. 30.0	21. 40.0	23. 50.0	25. 60.0	27. 70.0	29. 80.0	31. 90.0	
53	2. 12.5	4. 25.0	6. 37.5	8. 50.0	11. 2.5	13. 15.0	15. 27.5	17. 40.0	19. 52.5	22. 5.0	24. 17.5	26. 30.0	28. 42.5	30. 55.0	32. 67.5	
54	2. 15.0	4. 30.0	6. 45.0	9. 0.0	11. 15.0	13. 30.0	15. 45.0	18. 0.0	20. 15.0	22. 30.0	24. 45.0					

TO REDUCE THE SUN'S LONGITUDE, RIGHT ASCENSION, AND DECLINATION, AND, ALSO, THE EQUATION OF TIME, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Appar. time past Noon.	Variation in 24 hours.																								Longitude of the Ship or place.	
	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'	15° to 18° 45'		
	Hours	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'														
	Min.	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'														
Sec.	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	0' to 15'										0' to 15'			
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
1	0.32	0.35	0.37	0.40	0.42	0.45	0.47	0.50	0.52	0.55	0.57	0.60	0.62	0.65	0.67	0.70	0.72	0.75	0.77	0.80	0.82	0.85	0.87	0.90	15	
2	1.5	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.62	1.65	1.67	1.70	1.72	1.75	1.77	1.80	1.82	1.85	1.87	1.90	30	
3	1.37	1.45	1.52	1.60	1.67	1.75	1.82	1.90	1.97	2.05	2.12	2.20	2.27	2.35	2.42	2.50	2.57	2.65	2.72	2.80	2.87	2.95	3.02	3.10	45	
4	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00	4.10	4.20	4.30	4.40	60	
5	2.42	2.55	2.70	2.85	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	75	
6	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	6.00	6.15	6.30	6.45	6.60	90	
7	3.47	3.60	3.75	3.90	4.05	4.20	4.35	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	6.00	6.15	6.30	6.45	6.60	6.75	6.90	105	
8	4.20	4.40	4.60	4.80	5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.40	6.60	6.80	7.00	7.20	7.40	7.60	7.80	8.00	8.20	8.40	8.60	8.80	120	
9	4.52	4.75	5.00	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50	8.75	9.00	9.25	9.50	9.75	10.00	10.25	135	
10	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25	8.50	8.75	9.00	9.25	9.50	9.75	10.00	10.25	10.50	10.75	11.00	150	
11	5.57	5.85	6.15	6.45	6.75	7.05	7.35	7.65	7.95	8.25	8.55	8.85	9.15	9.45	9.75	10.05	10.35	10.65	10.95	11.25	11.55	11.85	12.15	12.45	165	
12	6.30	6.60	6.90	7.20	7.50	7.80	8.10	8.40	8.70	9.00	9.30	9.60	9.90	10.20	10.50	10.80	11.10	11.40	11.70	12.00	12.30	12.60	12.90	13.20	180	
13	7.25	7.55	7.85	8.15	8.45	8.75	9.05	9.35	9.65	9.95	10.25	10.55	10.85	11.15	11.45	11.75	12.05	12.35	12.65	12.95	13.25	13.55	13.85	14.15	3.15	
14	7.35	7.65	7.95	8.25	8.55	8.85	9.15	9.45	9.75	10.05	10.35	10.65	10.95	11.25	11.55	11.85	12.15	12.45	12.75	13.05	13.35	13.65	13.95	14.25	3.30	
15	8.75	9.05	9.35	9.65	9.95	10.25	10.55	10.85	11.15	11.45	11.75	12.05	12.35	12.65	12.95	13.25	13.55	13.85	14.15	14.45	14.75	15.05	15.35	15.65	3.45	
16	8.40	8.70	9.00	9.30	9.60	9.90	10.20	10.50	10.80	11.10	11.40	11.70	12.00	12.30	12.60	12.90	13.20	13.50	13.80	14.10	14.40	14.70	15.00	15.30	4.0	
17	9.12	9.45	9.75	10.05	10.35	10.65	10.95	11.25	11.55	11.85	12.15	12.45	12.75	13.05	13.35	13.65	13.95	14.25	14.55	14.85	15.15	15.45	15.75	16.05	4.15	
18	9.45	9.75	10.05	10.35	10.65	10.95	11.25	11.55	11.85	12.15	12.45	12.75	13.05	13.35	13.65	13.95	14.25	14.55	14.85	15.15	15.45	15.75	16.05	16.35	4.30	
19	10.17	10.50	10.80	11.10	11.40	11.70	12.00	12.30	12.60	12.90	13.20	13.50	13.80	14.10	14.40	14.70	15.00	15.30	15.60	15.90	16.20	16.50	16.80	17.10	4.45	
20	10.50	10.80	11.10	11.40	11.70	12.00	12.30	12.60	12.90	13.20	13.50	13.80	14.10	14.40	14.70	15.00	15.30	15.60	15.90	16.20	16.50	16.80	17.10	17.40	5.0	
21	11.22	11.55	11.85	12.15	12.45	12.75	13.05	13.35	13.65	13.95	14.25	14.55	14.85	15.15	15.45	15.75	16.05	16.35	16.65	16.95	17.25	17.55	17.85	18.15	6.15	
22	11.55	11.85	12.15	12.45	12.75	13.05	13.35	13.65	13.95	14.25	14.55	14.85	15.15	15.45	15.75	16.05	16.35	16.65	16.95	17.25	17.55	17.85	18.15	18.45	6.30	
23	12.27	12.55	12.85	13.15	13.45	13.75	14.05	14.35	14.65	14.95	15.25	15.55	15.85	16.15	16.45	16.75	17.05	17.35	17.65	17.95	18.25	18.55	18.85	19.15	6.45	
24	13.0	13.30	13.60	13.90	14.20	14.50	14.80	15.10	15.40	15.70	16.00	16.30	16.60	16.90	17.20	17.50	17.80	18.10	18.40	18.70	19.00	19.30	19.60	19.90	6.60	
25	13.32	13.60	13.85	14.15	14.45	14.75	15.05	15.35	15.65	15.95	16.25	16.55	16.85	17.15	17.45	17.75	18.05	18.35	18.65	18.95	19.25	19.55	19.85	20.15	6.75	
26	14.0	14.30	14.55	14.85	15.15	15.45	15.75	16.05	16.35	16.65	16.95	17.25	17.55	17.85	18.15	18.45	18.75	19.05	19.35	19.65	19.95	20.25	20.55	20.85	6.90	
27	14.37	14.65	14.90	15.20	15.50	15.80	16.10	16.40	16.70	17.00	17.30	17.60	17.90	18.20	18.50	18.80	19.10	19.40	19.70	20.00	20.30	20.60	20.90	21.20	7.05	
28	15.10	15.40	15.65	15.95	16.25	16.55	16.85	17.15	17.45	17.75	18.05	18.35	18.65	18.95	19.25	19.55	19.85	20.15	20.45	20.75	21.05	21.35	21.65	21.95	7.20	
29	15.42	15.70	16.00	16.30	16.60	16.90	17.20	17.50	17.80	18.10	18.40	18.70	19.00	19.30	19.60	19.90	20.20	20.50	20.80	21.10	21.40	21.70	22.00	22.30	7.35	
30	16.15	16.45	16.75	17.05	17.35	17.65	17.95	18.25	18.55	18.85	19.15	19.45	19.75	20.05	20.35	20.65	20.95	21.25	21.55	21.85	22.15	22.45	22.75	23.05	7.50	
31	16.47	16.75	17.05	17.35	17.65	17.95	18.25	18.55	18.85	19.15	19.45	19.75	20.05	20.35	20.65	20.95	21.25	21.55	21.85	22.15	22.45	22.75	23.05	23.35	7.65	
32	17.20	17.50	17.80	18.10	18.40	18.70	19.00	19.30	19.60	19.90	20.20	20.50	20.80	21.10	21.40	21.70	22.00	22.30	22.60	22.90	23.20	23.50	23.80	24.10	7.80	
33	17.52	17.80	18.10	18.40	18.70	19.00	19.30	19.60	19.90	20.20	20.50	20.80	21.10	21.40	21.70	22.00	22.30	22.60	22.90	23.20	23.50	23.80	24.10	24.40	7.95	
34	18.25	18.55	18.85	19.15	19.45	19.75	20.05	20.35	20.65	20.95	21.25	21.55	21.85	22.15	22.45	22.75	23.05	23.35	23.65	23.95	24.25	24.55	24.85	25.15	8.10	
35	18.57	18.85	19.15	19.45	19.75	20.05	20.35	20.65	20.95	21.25	21.55	21.85	22.15	22.45	22.75	23.05	23.35	23.65	23.95	24.25	24.55	24.85	25.15	25.45	8.25	
36	19.30	19.60	19.90	20.20	20.50	20.80	21.10	21.40	21.70	22.00	22.30	22.60	22.90	23.20	23.50	23.80	24.10	24.40	24.70	25.00	25.30	25.60	25.90	26.20	8.40	
37	20.25	20.55	20.85	21.15	21.45	21.75	22.05	22.35	22.65	22.95	23.25	23.55	23.85	24.15	24.45	24.75	25.05	25.35	25.65	25.95	26.25	26.55	26.85	27.15	8.55	
38	20.35	20.65	20.95	21.25	21.55	21.85	22.15	22.45	22.75	23.05	23.35	23.65	23.95	24.25	24.55	24.85	25.15	25.45	25.75	26.05	26.35	26.65	26.95	27.25	8.70	
39	21.75	22.05	22.35	22.65	22.95	23.25	23.55	23.85	24.15	24.45	24.75	25.05	25.35	25.65	25.95	26.25	26.55	26.85	27.15	27.45	27.75	28.05	28.35	28.65	8.85	
40	21.40	21.70	22.00	22.30	22.60	22.90	23.20	23.50	23.80	24.10	24.40	24.70	25.00	25.30	25.60	25.90	26.20	26.50	26.80	27.10	27.40	27.70	28.00	28.30	9.00	
41	22.12	22.40	22.70	23.00	23.30	23.60	23.90	24.20	24.50	24.80	25.10	25.40	25.70	26.00	26.30	26.60	26.90	27.20	27.50	27.80	28.10	28.40	28.70	29.00	9.15	
42	22.45	22.75	23.05	23.35	23.65	23.95	24.25	24.55	24.85	25.15	25.45	25.75	26.05	26.35	26.65	26.95	27.25	27.55	27.85	28.15	28.45	28.75	29.05	29.35	9.30	
43	23.17	23.45	23.75	24.05	24.35	24.65	24.95	25.25	25.55	25.85	26.15	26.45	26.75	27.05	27.35	27.65	27.95	28.25	28.55	28.85	29.15	29.45	29.75	30.05	9.45	
44	23.50	23.80	24.10	24.40	24.70	25.00	25.30	25.60	25.90	26.20	26.50	26.80	27.10	27												

TABLE XVI.

TO REDUCE THE MOON'S LONGITUDE, LATITUDE, RIGHT ASCENSION, DECLINATION, SEMIDIAMETER,
AND HORIZONTAL PARALLAX, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN
MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Variation in 12 hours.

Time from Noon or Midnight.	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	20"	30"	40"	50"	Longitude of the Ship or place.	
Hours. Min. Sec.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	15° to 18° 0'	
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15° to 14° 45'
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0° to 15°
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
13	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
14	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
16	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
17	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
18	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
19	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
21	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
22	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
23	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
24	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
26	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
27	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
28	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
29	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
30	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
31	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
32	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
33	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
34	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
35	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
36	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
37	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
38	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
39	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
40	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
41	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
42	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
43	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
44	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
45	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
46	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
47	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
48	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
49	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
50	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
51	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
52	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
53	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
54	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
55	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
56	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
57	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
58	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
59	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
60	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
61	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
62	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
63	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
64	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
65	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
66	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
67	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
68	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
69	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
70	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
71	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
72	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
73	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
74	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
75	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
76	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
77	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
78	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
79	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
80	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
81	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
82	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
83	0.1															

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TO REDUCE THE MOON'S LONGITUDE, LATITUDE, RIGHT ASCENSION, DECLINATION, SEMIDIAMETER AND HORIZONTAL PARALLAX, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Ap. time past N. or Midn.		Variation in 12 hours.															Longitude of the Ship or place.	
		1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	20'	30'	40'	50'	15° to 180°		
		1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	1. 11. III	15° to 140°	
		11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	11. 11. V	0° to 15°	
0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0.0. 0	0		
1	0.0. 5	0.0. 10	0.0. 15	0.0. 20	0.0. 25	0.0. 30	0.0. 35	0.0. 40	0.0. 45	0.0. 50	0.1. 0	0.1. 5	0.1. 10	0.1. 15	0.1. 20	0.15		
2	0.0. 10	0.0. 20	0.0. 30	0.0. 40	0.0. 50	0.1. 0	0.1. 10	0.1. 20	0.1. 30	0.1. 40	0.1. 50	0.2. 0	0.2. 10	0.2. 20	0.2. 30	0.30		
3	0.0. 15	0.0. 30	0.0. 45	0.1. 0	0.1. 15	0.1. 30	0.1. 45	0.2. 0	0.2. 15	0.2. 30	0.2. 45	0.3. 0	0.3. 10	0.3. 20	0.3. 30	0.45		
4	0.0. 20	0.0. 40	0.1. 0	0.1. 15	0.1. 30	0.1. 45	0.2. 0	0.2. 20	0.2. 40	0.3. 0	0.3. 20	0.3. 40	0.4. 0	0.4. 10	0.4. 20	0.60		
5	0.0. 25	0.0. 50	0.1. 15	0.1. 30	0.1. 45	0.2. 0	0.2. 25	0.2. 50	0.3. 0	0.3. 30	0.3. 45	0.4. 10	0.4. 20	0.4. 30	0.65	0.75		
6	0.0. 30	0.1. 0	0.1. 30	0.2. 0	0.2. 30	0.3. 0	0.3. 30	0.4. 0	0.4. 30	0.5. 0	0.5. 10	0.5. 20	0.5. 30	0.5. 40	0.70	0.90		
7	0.0. 35	0.1. 10	0.1. 45	0.2. 20	0.2. 55	0.3. 30	0.4. 0	0.4. 40	0.5. 15	0.5. 50	0.6. 10	0.6. 20	0.6. 30	0.6. 40	0.75	1.00		
8	0.0. 40	0.1. 20	0.2. 0	0.2. 40	0.3. 20	0.4. 0	0.4. 40	0.5. 20	0.6. 0	0.6. 40	0.7. 0	0.7. 10	0.7. 20	0.7. 30	0.80	1.10		
9	0.0. 45	0.1. 30	0.2. 15	0.3. 0	0.3. 45	0.4. 30	0.5. 15	0.6. 0	0.6. 45	0.7. 30	0.8. 0	0.8. 10	0.8. 20	0.8. 30	0.90	1.25		
10	0.0. 50	0.1. 40	0.2. 30	0.3. 20	0.4. 10	0.5. 0	0.5. 50	0.6. 40	0.7. 30	0.8. 20	0.9. 0	0.9. 10	0.9. 20	0.9. 30	1.00	1.40		
11	0.0. 55	0.1. 50	0.2. 45	0.3. 40	0.4. 35	0.5. 30	0.6. 25	0.7. 20	0.8. 15	0.9. 10	1.0. 0	1.0. 10	1.0. 20	1.0. 30	1.10	1.55		
12	0.1. 0	0.2. 0	0.3. 0	0.4. 0	0.5. 0	0.6. 0	0.7. 0	0.8. 0	0.9. 0	1.0. 0	1.1. 0	1.1. 10	1.1. 20	1.1. 30	1.2. 0	1.60		
13	0.1. 5	0.2. 10	0.3. 15	0.4. 20	0.5. 25	0.6. 30	0.7. 35	0.8. 40	0.9. 45	1.0. 50	1.1. 5	1.2. 10	1.2. 20	1.2. 30	1.3. 0	1.70		
14	0.1. 10	0.2. 20	0.3. 30	0.4. 40	0.5. 50	0.7. 0	0.8. 10	0.9. 20	1.0. 30	1.1. 40	1.2. 5	1.3. 15	1.3. 25	1.3. 35	1.4. 0	1.85		
15	0.1. 15	0.2. 30	0.3. 45	0.5. 0	0.6. 15	0.7. 30	0.8. 45	0.10. 0	0.11. 15	0.12. 30	0.13. 5	0.14. 20	0.14. 30	0.14. 40	1.5. 0	2.00		
16	0.1. 20	0.2. 40	0.4. 0	0.5. 20	0.6. 40	0.8. 0	0.9. 20	0.10. 40	0.12. 0	0.13. 20	0.14. 40	0.16. 0	0.16. 10	0.16. 20	1.6. 0	2.15		
17	0.1. 25	0.2. 50	0.4. 15	0.5. 40	0.7. 5	0.8. 30	0.9. 55	0.11. 20	0.12. 45	0.14. 10	0.15. 30	0.16. 50	0.17. 0	0.17. 10	1.7. 0	2.30		
18	0.1. 30	0.3. 0	0.4. 30	0.6. 0	0.7. 30	0.9. 0	0.10. 30	0.12. 0	0.13. 30	0.15. 0	0.16. 30	0.17. 50	0.18. 0	0.18. 10	1.8. 0	2.45		
19	0.1. 35	0.3. 10	0.4. 45	0.6. 20	0.7. 55	0.9. 30	0.11. 5	0.12. 40	0.14. 15	0.15. 50	0.17. 10	0.18. 30	0.19. 0	0.19. 10	1.9. 0	2.60		
20	0.1. 40	0.3. 20	0.5. 0	0.6. 40	0.8. 20	0.10. 0	0.11. 40	0.13. 20	0.15. 0	0.16. 40	0.18. 0	0.19. 20	0.20. 0	0.20. 10	2.0. 0	2.75		
21	0.1. 45	0.3. 30	0.5. 15	0.7. 0	0.8. 45	0.10. 30	0.12. 15	0.14. 0	0.15. 45	0.17. 30	0.19. 0	0.20. 20	0.21. 0	0.21. 10	2.1. 0	2.90		
22	0.1. 50	0.3. 40	0.5. 30	0.7. 20	0.9. 10	0.11. 0	0.12. 50	0.14. 40	0.16. 30	0.18. 20	0.20. 0	0.21. 20	0.22. 0	0.22. 10	2.2. 0	3.05		
23	0.1. 55	0.3. 50	0.5. 45	0.7. 40	0.9. 35	0.11. 10	0.13. 0	0.14. 50	0.16. 40	0.18. 30	0.20. 10	0.21. 30	0.22. 20	0.22. 30	2.3. 0	3.20		
24	0.2. 0	0.4. 0	0.6. 0	0.8. 0	0.10. 0	0.12. 0	0.14. 0	0.16. 0	0.18. 0	0.20. 0	0.22. 0	0.24. 0	0.25. 0	0.25. 10	2.4. 0	3.35		
25	0.2. 5	0.4. 10	0.6. 15	0.8. 20	0.10. 25	0.12. 30	0.14. 35	0.16. 40	0.18. 45	0.20. 50	0.22. 5	0.24. 15	0.25. 20	0.25. 30	2.5. 0	3.50		
26	0.2. 10	0.4. 20	0.6. 30	0.8. 40	0.10. 50	0.13. 0	0.15. 0	0.17. 0	0.19. 0	0.21. 0	0.23. 0	0.25. 0	0.26. 0	0.26. 10	2.6. 0	3.65		
27	0.2. 15	0.4. 30	0.6. 45	0.9. 0	0.11. 15	0.13. 30	0.15. 45	0.18. 0	0.20. 15	0.22. 30	0.24. 45	0.26. 0	0.27. 0	0.27. 10	2.7. 0	3.80		
28	0.2. 20	0.4. 40	0.7. 0	0.9. 20	0.11. 40	0.14. 0	0.16. 20	0.18. 40	0.21. 0	0.23. 20	0.25. 40	0.27. 0	0.28. 0	0.28. 10	2.8. 0	3.95		
29	0.2. 25	0.4. 50	0.7. 15	0.9. 40	0.12. 5	0.14. 30	0.16. 55	0.19. 20	0.21. 45	0.24. 10	0.26. 35	0.28. 0	0.29. 0	0.29. 10	2.9. 0	4.10		
30	0.2. 30	0.5. 0	0.7. 30	0.10. 0	0.12. 30	0.15. 0	0.17. 30	0.20. 0	0.22. 30	0.25. 0	0.27. 0	0.29. 0	0.30. 0	0.30. 10	3.0. 0	4.25		
31	0.2. 35	0.5. 10	0.7. 45	0.10. 20	0.12. 45	0.15. 15	0.18. 0	0.20. 15	0.22. 45	0.25. 15	0.27. 45	0.29. 0	0.30. 0	0.30. 10	3.1. 0	4.40		
32	0.2. 40	0.5. 20	0.8. 0	0.10. 40	0.13. 0	0.16. 0	0.18. 40	0.21. 20	0.24. 0	0.26. 40	0.29. 0	0.31. 10	0.32. 0	0.32. 10	3.2. 0	4.55		
33	0.2. 45	0.5. 30	0.8. 15	0.11. 0	0.13. 15	0.16. 15	0.19. 15	0.22. 0	0.24. 45	0.27. 30	0.29. 0	0.31. 30	0.32. 0	0.32. 10	3.3. 0	4.70		
34	0.2. 50	0.5. 40	0.8. 30	0.11. 20	0.14. 10	0.17. 0	0.19. 50	0.22. 40	0.25. 30	0.28. 20	0.30. 10	0.32. 20	0.33. 0	0.33. 10	3.4. 0	4.85		
35	0.2. 55	0.5. 50	0.8. 45	0.11. 40	0.14. 35	0.17. 30	0.20. 25	0.23. 20	0.26. 15	0.29. 10	0.32. 0	0.34. 30	0.35. 0	0.35. 10	3.5. 0	5.00		
36	0.3. 0	0.6. 0	0.9. 0	0.12. 0	0.15. 0	0.18. 0	0.21. 0	0.24. 0	0.27. 0	0.30. 0	0.33. 0	0.36. 0	0.37. 0	0.37. 10	3.6. 0	5.15		
37	0.3. 5	0.6. 10	0.9. 15	0.12. 20	0.15. 25	0.18. 30	0.21. 35	0.24. 40	0.27. 45	0.30. 50	0.33. 5	0.36. 15	0.37. 20	0.37. 30	3.7. 0	5.30		
38	0.3. 10	0.6. 20	0.9. 30	0.12. 40	0.15. 50	0.19. 0	0.22. 10	0.25. 20	0.28. 30	0.31. 40	0.34. 50	0.37. 5	0.38. 10	0.38. 20	3.8. 0	5.45		
39	0.3. 15	0.6. 30	0.9. 45	0.13. 0	0.16. 15	0.19. 30	0.22. 45	0.26. 0	0.29. 15	0.32. 30	0.35. 0	0.37. 30	0.38. 0	0.38. 10	3.9. 0	5.60		
40	0.3. 20	0.6. 40	0.10. 0	0.13. 20	0.16. 40	0.20. 0	0.23. 20	0.26. 40	0.30. 0	0.33. 20	0.36. 0	0.38. 20	0.39. 0	0.39. 10	4.0. 0	5.75		
41	0.3. 25	0.6. 50	0.10. 15	0.13. 40	0.17. 5	0.20. 30	0.23. 45	0.27. 0	0.30. 45	0.34. 10	0.37. 0	0.39. 10	0.40. 0	0.40. 10	4.1. 0	5.90		
42	0.3. 30	0.7. 0	0.10. 30	0.14. 0	0.17. 30	0.21. 0	0.24. 30	0.28. 0	0.31. 30	0.35. 0	0.38. 0	0.40. 0	0.41. 0	0.41. 10	4.2. 0	6.05		
43	0.3. 35	0.7. 10	0.10. 45	0.14. 20	0.17. 55	0.21. 30	0.25. 5	0.28. 40	0.32. 15	0.35. 50	0.39. 0	0.41. 10	0.42. 0	0.42. 10	4.3. 0	6.20		
44	0.3. 40	0.7. 20	0.11. 0	0.14. 40	0.18. 0	0.22. 0	0.26. 40	0.29. 30	0.33. 0	0.36. 40	0.40. 0	0.42. 10	0.43. 0	0.43. 10	4.4. 0	6.35		
45	0.3. 45	0.7. 30	0.11. 15	0.15. 0	0.18. 45	0.22. 30	0.26. 15	0.30. 0	0.33. 45	0.37. 30	0.41. 0	0.43. 10	0.44. 0	0.44. 10	4.5. 0	6.50		
46	0.3. 50	0.7. 40	0.11. 30	0.15. 20	0.19. 10	0.23. 0	0.26. 50	0.30. 40	0.34. 30	0.38. 20	0.42. 0	0.44. 10	0.45. 0	0.45. 10	4.6. 0	6.65		
47	0.3. 55	0.7. 50	0.11. 45	0.15. 40	0.19. 35	0.23. 30	0.27. 25	0.31. 20	0.35. 15	0.39. 10	0.43. 0	0.45. 10	0.46. 0	0.46. 10	4.7. 0	6.80		
48	0.4. 0	0.8. 0	0.12. 0	0.16. 0	0.20. 0	0.24. 0	0.28. 0	0.32. 0	0.36. 0	0.40. 0	0.44. 0	0.46. 0	0.47. 0	0.47. 10	4.8. 0	6.95		
49	0.4. 5	0.8. 10	0.12. 15	0.16. 20	0.20. 25	0.24. 30	0.28. 35	0.32. 40	0.36. 45	0.40. 50	0.44. 5	0.47. 10	0.48. 0	0.48. 10	4.9. 0	7.10		
50	0.4. 10	0.8. 20	0.12. 30	0.16. 40	0.20. 50	0.25. 0	0.29. 10	0.33. 20	0.37. 30	0.41. 40	0.45. 50	0.48. 10	0.49. 0	0.49. 10	5.0. 0	7.25		
51	0.4. 15	0.8. 30	0.12. 45	0.17. 0	0.21. 15	0.25. 30	0.29. 45	0.34. 0	0.38. 15	0.42. 30	0.46. 45	0.50. 0	0.51. 0	0.51. 10	5.1. 0	7.40		
52	0.4. 20	0.8. 40	0.13. 0	0.17. 20	0.21. 40	0.26. 0	0.30. 20	0.34. 40	0.39. 0	0.43. 20	0.47. 40	0.51. 10	0.52. 0	0.52. 10	5.2. 0	7.55		
53	0.4. 25	0.8. 50	0.13. 15	0.17. 40	0.22. 5	0.26. 30	0.30. 55	0.35. 30	0.39. 45	0.44. 10	0.48. 30	0.52. 10	0.53. 0	0.53. 10	5.3. 0	7.70		
54	0.4. 30	0.9. 0	0.13. 30	0.18. 0	0.22. 30	0.27. 0	0.31. 30	0.36. 0	0.40. 30	0.45. 0	0.50. 0	0.53. 10	0.54. 0	0.54. 10	5.4. 0	7.85		
55	0.4. 35	0.9. 10	0.13. 45	0.18. 20	0.22. 45	0.27. 30	0.32. 0	0.36. 40	0.41. 15	0.45. 50	0.51. 0	0.54. 10	0.55. 0	0.55. 10	5.5. 0	8.00		
56	0.4. 40	0.9. 20	0.14. 0	0.18. 40	0.23. 0	0.28. 0	0.32. 40	0.37. 20	0.42. 0	0.46. 40	0.51. 30	0.55. 10	0.56. 0	0.56. 10	5.6. 0	8.15		
57	0.4. 45	0.9. 30	0.14. 15	0.19. 0	0.23. 15	0.28. 30	0.33. 15	0.38. 0	0.42. 45	0.47. 30	0.52. 0	0.56. 10	0.57. 0	0.57. 10	5.7. 0	8.30		
58	0.4. 50	0.9. 40	0.14. 30	0.19. 20	0.23. 30	0.29. 0												

TABLE XVI.

15

TO REDUCE THE MOON'S LONGITUDE, LATITUDE, RIGHT ASCENSION, DECLINATION, SEMI-DIAMETER, AND HORIZONTAL PARALLAX, AS GIVEN IN THE NAUTICAL ALMANAC, TO ANY GIVEN MERIDIAN, AND TO ANY GIVEN TIME UNDER THAT MERIDIAN.

Ap. time past N. or Midn.	Variation in 12 hours.										Longitude of the Ship or place.
	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	
	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	
	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	
0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0	0. 0. 0
1	0. 5. 0	0. 10. 0	0. 15. 0	0. 20. 0	0. 25. 0	0. 30. 0	0. 35. 0	0. 40. 0	0. 45. 0	0. 50. 0	0. 55. 0
2	0. 10. 0	0. 20. 0	0. 30. 0	0. 40. 0	0. 50. 0	1. 0. 0	1. 10. 0	1. 20. 0	1. 30. 0	1. 40. 0	1. 50. 0
3	0. 15. 0	0. 30. 0	0. 45. 0	1. 0. 0	1. 15. 0	1. 30. 0	1. 45. 0	2. 0. 0	2. 15. 0	2. 30. 0	2. 45. 0
4	0. 20. 0	0. 40. 0	1. 0. 0	1. 20. 0	1. 40. 0	2. 0. 0	2. 20. 0	2. 40. 0	3. 0. 0	3. 20. 0	3. 40. 0
5	0. 25. 0	0. 50. 0	1. 15. 0	1. 40. 0	2. 0. 0	2. 30. 0	2. 55. 0	3. 20. 0	3. 45. 0	4. 10. 0	4. 35. 0
6	0. 30. 0	1. 0. 0	1. 30. 0	2. 0. 0	2. 30. 0	3. 0. 0	3. 30. 0	4. 0. 0	4. 30. 0	5. 0. 0	5. 30. 0
7	0. 35. 0	1. 10. 0	1. 45. 0	2. 20. 0	2. 55. 0	3. 30. 0	4. 0. 0	4. 40. 0	5. 15. 0	5. 50. 0	6. 25. 0
8	0. 40. 0	1. 20. 0	2. 0. 0	2. 40. 0	3. 20. 0	4. 0. 0	4. 40. 0	5. 20. 0	6. 0. 0	6. 40. 0	7. 20. 0
9	0. 45. 0	1. 30. 0	2. 15. 0	3. 0. 0	3. 45. 0	4. 30. 0	5. 15. 0	6. 0. 0	6. 45. 0	7. 30. 0	8. 15. 0
10	0. 50. 0	1. 40. 0	2. 30. 0	3. 20. 0	4. 10. 0	5. 0. 0	5. 50. 0	6. 40. 0	7. 30. 0	8. 20. 0	9. 10. 0
11	0. 55. 0	1. 50. 0	2. 45. 0	3. 40. 0	4. 35. 0	5. 30. 0	6. 25. 0	7. 20. 0	8. 15. 0	9. 10. 0	10. 5. 0
12	1. 0. 0	2. 0. 0	3. 0. 0	4. 0. 0	5. 0. 0	6. 0. 0	7. 0. 0	8. 0. 0	9. 0. 0	10. 0. 0	11. 0. 0
13	1. 5. 0	2. 10. 0	3. 15. 0	4. 20. 0	5. 25. 0	6. 30. 0	7. 35. 0	8. 40. 0	9. 45. 0	10. 50. 0	11. 55. 0
14	1. 10. 0	2. 20. 0	3. 30. 0	4. 40. 0	5. 50. 0	7. 0. 0	8. 10. 0	9. 20. 0	10. 30. 0	11. 40. 0	12. 50. 0
15	1. 15. 0	2. 30. 0	3. 45. 0	5. 0. 0	6. 15. 0	7. 30. 0	8. 45. 0	10. 0. 0	11. 15. 0	12. 30. 0	13. 45. 0
16	1. 20. 0	2. 40. 0	4. 0. 0	5. 20. 0	6. 40. 0	8. 0. 0	9. 20. 0	10. 40. 0	12. 0. 0	13. 20. 0	14. 40. 0
17	1. 25. 0	2. 50. 0	4. 15. 0	5. 40. 0	7. 0. 0	8. 30. 0	9. 55. 0	11. 20. 0	12. 45. 0	14. 10. 0	15. 35. 0
18	1. 30. 0	3. 0. 0	4. 30. 0	6. 0. 0	7. 30. 0	9. 0. 0	10. 30. 0	12. 0. 0	13. 30. 0	15. 0. 0	16. 30. 0
19	1. 35. 0	3. 10. 0	4. 45. 0	6. 20. 0	7. 55. 0	9. 30. 0	11. 0. 0	12. 40. 0	14. 15. 0	15. 50. 0	17. 25. 0
20	1. 40. 0	3. 20. 0	5. 0. 0	6. 40. 0	8. 20. 0	10. 0. 0	11. 40. 0	13. 20. 0	15. 0. 0	16. 40. 0	18. 0. 0
21	1. 45. 0	3. 30. 0	5. 15. 0	7. 0. 0	8. 45. 0	10. 30. 0	12. 15. 0	14. 0. 0	15. 45. 0	17. 30. 0	19. 0. 0
22	1. 50. 0	3. 40. 0	5. 30. 0	7. 20. 0	9. 10. 0	11. 0. 0	12. 50. 0	14. 40. 0	16. 30. 0	18. 20. 0	20. 0. 0
23	1. 55. 0	3. 50. 0	5. 45. 0	7. 40. 0	9. 35. 0	11. 30. 0	13. 25. 0	15. 20. 0	17. 15. 0	19. 10. 0	21. 0. 0
24	2. 0. 0	4. 0. 0	6. 0. 0	8. 0. 0	10. 0. 0	12. 0. 0	14. 0. 0	16. 0. 0	18. 0. 0	20. 0. 0	22. 0. 0
25	2. 5. 0	4. 10. 0	6. 15. 0	8. 20. 0	10. 25. 0	12. 30. 0	14. 35. 0	16. 40. 0	18. 45. 0	20. 50. 0	23. 0. 0
26	2. 10. 0	4. 20. 0	6. 30. 0	8. 40. 0	10. 50. 0	13. 0. 0	15. 10. 0	17. 20. 0	19. 30. 0	21. 40. 0	24. 0. 0
27	2. 15. 0	4. 30. 0	6. 45. 0	9. 0. 0	11. 15. 0	13. 30. 0	15. 45. 0	18. 0. 0	20. 15. 0	22. 30. 0	25. 0. 0
28	2. 20. 0	4. 40. 0	7. 0. 0	9. 20. 0	11. 40. 0	14. 0. 0	16. 20. 0	18. 40. 0	21. 0. 0	23. 20. 0	26. 0. 0
29	2. 25. 0	4. 50. 0	7. 15. 0	9. 40. 0	12. 5. 0	14. 30. 0	16. 55. 0	19. 20. 0	21. 45. 0	24. 10. 0	27. 0. 0
30	2. 30. 0	5. 0. 0	7. 30. 0	10. 0. 0	12. 30. 0	15. 0. 0	17. 30. 0	20. 0. 0	22. 30. 0	25. 0. 0	28. 0. 0
31	2. 35. 0	5. 10. 0	7. 45. 0	10. 20. 0	12. 55. 0	15. 30. 0	18. 5. 0	20. 40. 0	23. 15. 0	26. 0. 0	29. 0. 0
32	2. 40. 0	5. 20. 0	8. 0. 0	10. 40. 0	13. 20. 0	16. 0. 0	19. 0. 0	21. 30. 0	24. 0. 0	27. 0. 0	30. 0. 0
33	2. 45. 0	5. 30. 0	8. 15. 0	11. 0. 0	13. 45. 0	16. 30. 0	19. 15. 0	22. 0. 0	24. 45. 0	28. 0. 0	31. 0. 0
34	2. 50. 0	5. 40. 0	8. 30. 0	11. 20. 0	14. 10. 0	17. 0. 0	19. 50. 0	22. 40. 0	25. 30. 0	29. 0. 0	32. 0. 0
35	2. 55. 0	5. 50. 0	8. 45. 0	11. 40. 0	14. 35. 0	17. 30. 0	20. 25. 0	23. 20. 0	26. 15. 0	30. 0. 0	33. 0. 0
36	3. 0. 0	6. 0. 0	9. 0. 0	12. 0. 0	15. 0. 0	18. 0. 0	21. 0. 0	24. 0. 0	27. 0. 0	31. 0. 0	34. 0. 0
37	3. 5. 0	6. 10. 0	9. 15. 0	12. 20. 0	15. 25. 0	18. 30. 0	21. 35. 0	24. 40. 0	27. 45. 0	32. 0. 0	35. 0. 0
38	3. 10. 0	6. 20. 0	9. 30. 0	12. 40. 0	15. 50. 0	19. 0. 0	22. 10. 0	25. 20. 0	28. 30. 0	33. 0. 0	36. 0. 0
39	3. 15. 0	6. 30. 0	9. 45. 0	13. 0. 0	16. 15. 0	19. 30. 0	22. 45. 0	26. 0. 0	29. 15. 0	34. 0. 0	37. 0. 0
40	3. 20. 0	6. 40. 0	10. 0. 0	13. 20. 0	16. 40. 0	20. 0. 0	23. 20. 0	26. 40. 0	30. 0. 0	35. 0. 0	38. 0. 0
41	3. 25. 0	6. 50. 0	10. 15. 0	13. 40. 0	17. 5. 0	20. 30. 0	24. 55. 0	27. 20. 0	30. 45. 0	36. 0. 0	39. 0. 0
42	3. 30. 0	7. 0. 0	10. 30. 0	14. 0. 0	17. 30. 0	21. 0. 0	25. 30. 0	28. 0. 0	31. 30. 0	37. 0. 0	40. 0. 0
43	3. 35. 0	7. 10. 0	10. 45. 0	14. 20. 0	17. 55. 0	21. 30. 0	26. 5. 0	28. 40. 0	32. 15. 0	38. 0. 0	41. 0. 0
44	3. 40. 0	7. 20. 0	11. 0. 0	14. 40. 0	18. 20. 0	22. 0. 0	27. 40. 0	29. 20. 0	33. 0. 0	39. 0. 0	42. 0. 0
45	3. 45. 0	7. 30. 0	11. 15. 0	15. 0. 0	18. 45. 0	22. 30. 0	28. 15. 0	30. 0. 0	33. 45. 0	40. 0. 0	43. 0. 0
46	3. 50. 0	7. 40. 0	11. 30. 0	15. 20. 0	19. 10. 0	23. 0. 0	29. 50. 0	30. 40. 0	34. 30. 0	41. 0. 0	44. 0. 0
47	3. 55. 0	7. 50. 0	11. 45. 0	15. 40. 0	19. 35. 0	23. 30. 0	30. 25. 0	31. 20. 0	35. 15. 0	42. 0. 0	45. 0. 0
48	4. 0. 0	8. 0. 0	12. 0. 0	16. 0. 0	20. 0. 0	24. 0. 0	31. 0. 0	32. 0. 0	36. 0. 0	43. 0. 0	46. 0. 0
49	4. 5. 0	8. 10. 0	12. 15. 0	16. 20. 0	20. 25. 0	24. 30. 0	31. 35. 0	32. 40. 0	36. 45. 0	44. 0. 0	47. 0. 0
50	4. 10. 0	8. 20. 0	12. 30. 0	16. 40. 0	20. 50. 0	25. 0. 0	32. 10. 0	33. 20. 0	37. 30. 0	45. 0. 0	48. 0. 0
51	4. 15. 0	8. 30. 0	12. 45. 0	17. 0. 0	21. 15. 0	25. 30. 0	32. 45. 0	34. 0. 0	38. 15. 0	46. 0. 0	49. 0. 0
52	4. 20. 0	8. 40. 0	13. 0. 0	17. 20. 0	21. 40. 0	26. 0. 0	33. 20. 0	34. 40. 0	39. 0. 0	47. 0. 0	50. 0. 0
53	4. 25. 0	8. 50. 0	13. 15. 0	17. 40. 0	22. 5. 0	26. 30. 0	34. 55. 0	35. 20. 0	39. 45. 0	48. 0. 0	51. 0. 0
54	4. 30. 0	9. 0. 0	13. 30. 0	18. 0. 0	22. 30. 0	27. 0. 0	35. 30. 0	36. 0. 0	40. 30. 0	49. 0. 0	52. 0. 0
55	4. 35. 0	9. 10. 0	13. 45. 0	18. 20. 0	22. 55. 0	27. 30. 0	36. 5. 0	36. 40. 0	41. 15. 0	50. 0. 0	53. 0. 0
56	4. 40. 0	9. 20. 0	14. 0. 0	18. 40. 0	23. 20. 0	28. 0. 0	37. 20. 0	37. 20. 0	42. 0. 0	51. 0. 0	54. 0. 0
57	4. 45. 0	9. 30. 0	14. 15. 0	19. 0. 0	23. 45. 0	28. 30. 0	38. 5. 0	38. 0. 0	42. 45. 0	52. 0. 0	55. 0. 0
58	4. 50. 0	9. 40. 0	14. 30. 0	19. 20. 0	24. 10. 0	29. 0. 0	39. 30. 0	39. 40. 0	43. 30. 0	53. 0. 0	56. 0. 0
59	4. 55. 0	9. 50. 0	14. 45. 0	19. 40. 0	24. 35. 0	29. 30. 0	40. 25. 0	40. 20. 0	44. 15. 0	54. 0. 0	57. 0. 0
Ap. time past N. or Midn.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	Longitude of the Ship or place.
	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	

EQUATION OF SECOND DIFFERENCE.

Apparent time past Noon, or Midnight		Second Difference of the Moon's place.																				Apparent time past Noon, or Midnight	
		1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	15'	20'	25'	30'	40'	50'						
h.	m.																					h.	m.
0.	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12. 0	
10		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	50	
20		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.7	0.8	0.8	0.7	0.7	40	
30		0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	1.0	1.3	1.0	1.3	30	
40		0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.7	0.8	1.0	1.3	1.6	2.0	2.0	1.6	20	
50		0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.6	0.8	1.0	1.3	1.6	2.0	2.5	3.0	3.2	10	
1.	0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.6	0.8	0.9	1.1	1.5	1.9	2.5	3.0	3.0	2.5	11. 0	
10		0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.7	0.9	1.1	1.3	1.8	2.2	2.8	3.5	4.0	4.0	50	
20		0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.7	0.9	1.1	1.2	1.5	2.0	2.5	3.0	3.5	3.5	40	
30		0.0	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.8	1.1	1.4	1.6	2.2	2.7	3.3	4.1	4.5	4.5	30	
40		0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.9	1.2	1.5	1.8	2.4	3.0	3.6	4.3	5.0	5.0	20	
50		0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.6	1.0	1.3	1.6	1.9	2.6	3.2	3.8	4.5	5.2	5.2	10	
2.	0	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.6	0.7	1.0	1.4	1.7	2.1	2.8	3.5	4.2	5.0	5.5	5.5	10. 0	
10		0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.7	1.1	1.5	1.8	2.2	3.0	3.7	4.4	5.2	5.8	5.8	50	
20		0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.8	1.2	1.6	2.0	2.3	3.1	3.9	4.6	5.4	6.0	6.0	40	
30		0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.8	1.2	1.6	2.1	2.5	3.3	4.1	4.8	5.6	6.2	6.2	30	
40		0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.3	1.7	2.2	2.6	3.5	4.3	5.0	5.8	6.4	6.4	20	
50		0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.3	1.8	2.2	2.7	3.6	4.5	5.3	6.0	6.7	6.7	10	
3.	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.8	0.9	1.4	1.9	2.3	2.8	3.8	4.7	5.5	6.2	7.0	7.0	9. 0	
10		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.5	1.9	2.4	2.9	3.9	4.9	5.7	6.4	7.2	7.2	50	
20		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.5	2.0	2.5	3.0	4.0	5.0	5.8	6.5	7.3	7.3	40	
30		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.5	2.1	2.6	3.1	4.1	5.2	6.0	6.7	7.5	7.5	30	
40		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.1	1.6	2.1	2.6	3.2	4.2	5.3	6.1	6.8	7.6	7.6	20	
50		0.1	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.1	1.6	2.2	2.7	3.3	4.3	5.4	6.2	6.9	7.7	7.7	10	
4.	0	0.1	0.2	0.3	0.4	0.6	0.7	0.8	0.9	1.0	1.1	1.7	2.2	2.8	3.3	4.4	5.6	6.4	7.1	7.8	7.8	8. 0	
10		0.1	0.2	0.3	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.7	2.3	2.9	3.5	4.6	5.8	6.6	7.3	8.0	8.0	40	
20		0.1	0.2	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.8	2.4	3.0	3.6	4.8	5.9	6.7	7.4	8.1	8.1	30	
30		0.1	0.2	0.4	0.5	0.6	0.7	0.8	1.0	1.1	1.2	1.8	2.4	3.0	3.6	4.9	6.1	6.9	7.6	8.3	8.3	20	
40		0.1	0.2	0.4	0.5	0.6	0.7	0.9	1.0	1.1	1.3	1.9	2.5	3.1	3.8	5.0	6.3	7.1	7.8	8.5	8.5	10	
5.	0	0.1	0.2	0.4	0.5	0.6	0.7	0.8	1.0	1.1	1.2	1.8	2.4	3.0	3.6	4.9	6.1	6.9	7.6	8.3	8.3	7. 0	
6.	0	0.1	0.2	0.4	0.5	0.6	0.7	0.9	1.0	1.1	1.3	1.9	2.5	3.1	3.8	5.0	6.3	7.1	7.8	8.5	8.5	6. 0	

App. time past noon or Mid-night.		Second Difference of the Moon's place.																				App. time past noon or Mid-night.	
		1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	20'						
h.	m.																					h.	m.
0.	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12. 0	
10		0.040	0.080	0.120	0.160	0.210	0.250	0.290	0.330	0.370	0.410	0.450	0.490	0.530	0.570	0.610	0.650	0.690	0.730	0.770	0.810	50	
20		0.080	0.160	0.240	0.320	0.410	0.490	0.570	0.650	0.730	0.810	0.890	0.970	1.050	1.130	1.210	1.290	1.370	1.450	1.530	1.610	40	
30		0.120	0.240	0.360	0.480	0.600	0.720	0.840	0.960	1.080	1.200	1.320	1.440	1.560	1.680	1.800	1.920	2.040	2.160	2.280	2.400	30	
40		0.160	0.310	0.470	0.630	0.790	0.940	1.100	1.260	1.420	1.570	1.730	1.890	2.050	2.210	2.370	2.530	2.690	2.850	3.010	3.170	20	
50		0.190	0.390	0.590	0.790	0.970	1.160	1.360	1.550	1.740	1.940	2.130	2.330	2.520	2.720	2.910	3.110	3.300	3.500	3.690	3.890	10	
1.	0	0.230	0.460	0.690	0.920	1.150	1.380	1.610	1.830	2.060	2.290	2.520	2.750	2.980	3.210	3.440	3.670	3.900	4.130	4.360	4.590	11. 0	
10		0.260	0.530	0.790	1.050	1.320	1.580	1.840	2.110	2.370	2.630	2.890	3.150	3.410	3.670	3.930	4.190	4.450	4.710	4.970	5.230	50	
20		0.300	0.590	0.890	1.190	1.490	1.790	2.090	2.390	2.690	2.990	3.290	3.590	3.890	4.190	4.490	4.790	5.090	5.390	5.690	5.990	40	
30		0.330	0.660	0.990	1.310	1.640	1.970	2.300	2.630	2.960	3.290	3.620	3.950	4.280	4.610	4.940	5.270	5.600	5.930	6.260	6.590	30	
40		0.360	0.720	1.080	1.440	1.790	2.150	2.510	2.870	3.230	3.590	3.950	4.310	4.670	5.030	5.390	5.750	6.110	6.470	6.830	7.190	20	
50		0.390	0.780	1.160	1.550	1.940	2.330	2.720	3.110	3.500	3.890	4.280	4.670	5.060	5.450	5.840	6.230	6.620	7.010	7.400	7.790	10	
2.	0	0.420	0.830	1.250	1.670	2.080	2.490	2.900	3.310	3.720	4.130	4.540	4.950	5.360	5.770	6.180	6.590	7.000	7.410	7.820	8.230	10. 0	
10		0.440	0.890	1.330	1.780	2.220	2.660	3.100	3.540	3.980	4.420	4.860	5.300	5.740	6.180	6.620	7.060	7.500	7.940	8.380	8.820	50	
20		0.470	0.940	1.410	1.880	2.350	2.820	3.290	3.760	4.230	4.700	5.170	5.640	6.110	6.580	7.050	7.520	7.990	8.460	8.930	9.400	40	
30		0.490	0.990	1.490	1.990	2.490	2.990	3.490	3.990	4.490	4.990	5.490	5.990	6.490	6.990	7.490	7.990	8.490	8.990	9.490	9.990	30	
40		0.520	1.040	1.560	2.070	2.590	3.100	3.610	4.120	4.630	5.140	5.650	6.160	6.670	7.180	7.690	8.200	8.710	9.220	9.730	10.240	20	
50		0.540	1.080	1.610	2.130	2.660	3.180	3.710	4.230	4.760	5.280	5.810	6.330	6.860	7.380	7.910	8.430	8.960	9.480	10.010	10.530	10	
3.	0	0.560	1.130	1.690	2.250	2.810	3.370	3.930	4.490	5.050	5.610	6.170	6.730	7.290	7.850	8.410	8.970	9.530	10.090	10.650	11.210	9. 0	
10		0.580	1.170	1.750	2.330	2.910	3.490	4.070	4.650	5.230	5.810	6.390	6.970	7.550	8.130	8.710	9.290	9.870	10.450	11.030	11.610	50	
20		0.600	1.200	1.800	2.400	3.000	3.600	4.200	4.800	5.400	6.000	6.600	7.200	7.800	8.400	9.000	9.600	10.200	10.800	11.400	12.000	40	
30		0.620	1.240	1.860	2.480	3.100	3.720	4.340	4.960	5.580	6.200	6.820	7.440	8.060	8.680	9.300	9.920	10.540	11.160	11.780	12.400	30	
40		0.640	1.270	1.910	2.550	3.180	3.820	4.460	5.100	5.740	6.380	7.020	7.660	8.300	8.940	9.580	10.220	10.860	11.500	12.140	12.780	20	
50		0.650	1.300	1.960	2.600	3.240	3.880	4.520	5.160	5.800	6.440	7.08											

CORRECTION OF THE MOON'S APPARENT ALTITUDE.

App. Alt.	Moon's Horizontal Parallax.										Proportional parts to																			Minutes of Altitude	
	53'	54'	55'	56'	57'	58'	59'	60'	61'	Seconds of Parallax.																					
										0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		Add.
0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	27.0	28.0	0	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	9.8
10	21.38	22.38	23.38	24.38	25.38	26.38	27.38	28.38	29.38	10	10	11	12	13	14	15	16	17	18	19	10	11	12	13	14	15	16	17	18	19	9.2
20	23.10	24.10	25.10	26.10	27.10	28.10	29.10	30.10	31.10	20	20	21	22	23	24	25	26	27	28	29	20	21	22	23	24	25	26	27	28	29	8.6
30	24.37	25.37	26.37	27.37	28.37	29.37	30.37	31.37	32.37	30	30	31	32	33	34	35	36	37	38	39	30	31	32	33	34	35	36	37	38	39	8.0
40	26.0	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	40	40	41	42	43	44	45	46	47	48	49	40	41	42	43	44	45	46	47	48	49	7.4
50	27.18	28.18	29.18	30.18	31.18	32.18	33.18	34.18	35.18	50	50	51	52	53	54	55	56	57	58	59	50	51	52	53	54	55	56	57	58	59	6.8
0	28.31	29.31	30.31	31.31	32.31	33.31	34.31	35.31	36.31	0	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	6.2
10	29.40	30.40	31.40	32.40	33.40	34.40	35.40	36.40	37.40	10	10	11	12	13	14	15	16	17	18	19	10	11	12	13	14	15	16	17	18	19	5.6
20	30.44	31.44	32.44	33.44	34.44	35.44	36.44	37.44	38.44	20	20	21	22	23	24	25	26	27	28	29	20	21	22	23	24	25	26	27	28	29	5.0
30	31.44	32.44	33.44	34.44	35.44	36.44	37.44	38.44	39.44	30	30	31	32	33	34	35	36	37	38	39	30	31	32	33	34	35	36	37	38	39	4.4
40	32.41	33.41	34.41	35.41	36.41	37.41	38.41	39.41	40.41	40	40	41	42	43	44	45	46	47	48	49	40	41	42	43	44	45	46	47	48	49	3.8
50	33.33	34.34	35.34	36.34	37.34	38.34	39.34	40.34	41.34	50	50	51	52	53	54	55	56	57	58	59	50	51	52	53	54	55	56	57	58	59	3.2
0	34.23	35.23	36.23	37.23	38.23	39.23	40.23	41.23	42.23	0	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	2.6
10	35.10	36.10	37.10	38.10	39.10	40.10	41.10	42.10	43.10	10	10	11	12	13	14	15	16	17	18	19	10	11	12	13	14	15	16	17	18	19	2.0
20	35.53	36.53	37.53	38.53	39.53	40.53	41.53	42.53	43.53	20	20	21	22	23	24	25	26	27	28	29	20	21	22	23	24	25	26	27	28	29	1.4
30	36.34	37.34	38.33	39.33	40.33	41.33	42.33	43.33	44.33	30	30	31	32	33	34	35	36	37	38	39	30	31	32	33	34	35	36	37	38	39	0.8
40	37.12	38.12	39.12	40.11	41.11	42.11	43.11	44.11	45.11	40	40	41	42	43	44	45	46	47	48	49	40	41	42	43	44	45	46	47	48	49	0.2
50	37.47	38.47	39.47	40.47	41.47	42.47	43.47	44.47	45.47	50	50	51	52	53	54	55	56	57	58	59	50	51	52	53	54	55	56	57	58	59	0.6
0	38.21	39.21	40.20	41.20	42.20	43.20	44.20	45.20	46.20	0	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0.0
10	38.52	39.52	40.52	41.52	42.52	43.52	44.52	45.52	46.52	10	10	11	12	13	14	15	16	17	18	19	10	11	12	13	14	15	16	17	18	19	0.6
20	39.21	40.21	41.21	42.21	43.21	44.21	45.21	46.21	47.20	20	20	21	22	23	24	25	26	27	28	29	20	21	22	23	24	25	26	27	28	29	0.0
30	39.49	40.49	41.49	42.49	43.48	44.48	45.48	46.48	47.48	30	30	31	32	33	34	35	36	37	38	39	30	31	32	33	34	35	36	37	38	39	0.6
40	40.13	41.13	42.13	43.13	44.13	45.13	46.13	47.13	48.13	40	40	41	42	43	44	45	46	47	48	49	40	41	42	43	44	45	46	47	48	49	0.2
50	40.39	41.39	42.39	43.39	44.39	45.38	46.38	47.38	48.38	50	50	51	52	53	54	55	56	57	58	59	50	51	52	53	54	55	56	57	58	59	0.6
0	41.2	42.2	43.2	44.2	45.1	46.1	47.1	48.1	49.1	0	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0.0
10	41.24	42.24	43.23	44.23	45.23	46.23	47.23	48.23	49.22	10	10	11	12	13	14	15	16	17	18	19	10	11	12	13	14	15	16	17	18	19	0.6
20	41.44	42.44	43.44	44.44	45.43	46.43	47.43	48.43	49.43	20	20	21	22	23	24	25	26	27	28	29	20	21	22	23	24	25	26	27	28	29	0.0
30	42.3	43.3	44.3	45.3	46.3	47.2	48.2	49.2	50.2	30	30	31	32	33	34	35	36	37	38	39	30	31	32	33	34	35	36	37	38	39	0.6
40	42.21	43.21	44.21	45.21	46.21	47.21	48.20	49.20	50.20	40	40	41	42	43	44	45	46	47	48	49	40	41	42	43	44	45	46	47	48	49	0.2
50	42.39	43.39	44.38	45.38	46.38	47.38	48.37	49.37	50.37	50	50	51	52	53	54	55	56	57	58	59	50	51	52	53	54	55	56	57	58	59	0.6
0	42.55	43.55	44.54	45.54	46.54	47.54	48.54	49.53	50.53	0	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0.0
10	43.10	44.10	45.10	46.10	47.9	48.9	49.9	50.9	51.8	10	10	11	12	13	14	15	16	17	18	19	10	11	12	13	14	15	16	17	18	19	0.6
20	43.23	44.23	45.23	46.23	47.23	48.23	49.23	50.23	51.23	20	20	21	22	23	24	25	26	27	28	29	20	21	22	23	24	25	26	27	28	29	0.0
30	43.37	44.37	45.37	46.37	47.37	48.37	49.37	50.37	51.36	30	30	31	32	33	34	35	36	37	38	39	30	31	32	33	34	35	36	37	38	39	0.6
40	43.51	44.51	45.51	46.51	47.51	48.50	49.50	50.50	51.49	40	40	41	42	43	44	45	46	47	48	49	40	41	42	43	44	45	46	47	48	49	0.2
50	44.3	45.3	46.3	47.3	48.3	49.3	50.2	51.2	52.2	50	50	51	52	53	54	55	56	57	58	59	50	51	52	53	54	55	56	57	58	59	0.6
0	44.15	45.15	46.15	47.15	48.15	49.14	50.14	51.14	52.13	0	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0.0
10	44.27	45.27	46.26	47.26	48.26	49.25	50.25	51.25	52.24	10	10	11	12	13	14	15	16	17	18	19	10	11	12	13	14	15	16	17	18	19	0.6
20	44.38	45.37	46.37	47.37	48.36	49.36	50.35	51.35	52.35	20	20	21	22	23	24	25	26	27	28	29	20	21	22	23	24	25	26	27	28	29	0.0
30	44.49	45.48	46.48	47.47	48.46	49.46	50.45	51.45	52.45	30	30	31	32	33	34	35	36	37	38	39	30	31	32	33	34	35	36	37	38	39	0.6
40	44.58	45.57	46.57	47.56	48.56	49.55	50.55	51.55	52.54	40	40	41	42	43	44	45	46	47	48	49	40	41	42	43	44	45	46	47	48	49	0.2
50	45.7	46.6	47.6	48.5	49.5	50.4	51.4	52.4	53.3	50	50	51	52	53	54	55	56	57	58	59	50	51	52	53	54	55	56	57	58	59	0.6
0	45.16	46.15	47.14	48.14	49.13	50.13	51.13	52.12	53.12	0	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0.0
10	45.24	46.23	47.22	48.22	49.21	50.21	51.21	52.20	53.20	10	10	11	12	13	14	15	16	17	18	19	10	11	12								

CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's Horizontal Parallax.											Proportional parts to Seconds of Parallax.										Minute of Altitude
Moon's App. Alt.	53'	54'	55'	56'	57'	58'	59'	60'	61'	"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	
	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
10	46.57	47.56	48.55	49.54	50.53	51.52	52.51	53.50	54.49	0	0	1	2	3	4	5	6	7	8	9	Add
11	47.0	47.59	48.58	49.57	50.56	51.55	52.54	53.53	54.52	10	10	11	12	13	14	15	16	17	18	19	1'
20	47.3	48.2	49.1	50.0	50.9	51.8	52.7	53.6	54.5	20	20	20	21	22	23	24	25	26	27	28	2'
30	47.6	48.5	49.4	50.3	51.2	52.1	53.0	53.9	54.8	30	29	30	31	32	33	34	35	36	37	38	3'
40	47.9	48.8	49.7	50.6	51.5	52.4	53.3	54.2	55.1	40	39	40	41	42	43	44	45	46	47	48	4'
50	47.12	48.11	49.10	50.9	51.8	52.7	53.6	54.4	55.3	50	49	50	51	52	53	54	55	56	57	58	5'
11	47.14	48.13	49.12	50.11	51.10	52.9	53.8	54.7	55.6	0	0	1	2	3	4	5	6	7	8	9	5.1
10	47.17	48.16	49.15	50.14	51.12	52.11	53.10	54.9	55.8	10	10	11	12	13	14	15	16	17	18	19	6.1
20	47.19	48.18	49.17	50.16	51.15	52.13	53.12	54.11	55.10	20	20	20	21	22	23	24	25	26	27	28	7.1
30	47.22	48.21	49.20	50.19	51.17	52.16	53.15	54.14	55.13	30	29	30	31	32	33	34	35	36	37	38	8.1
40	47.23	48.22	49.21	50.20	51.19	52.17	53.16	54.15	55.14	40	39	40	41	42	43	44	45	46	47	48	9.1
50	47.25	48.24	49.23	50.22	51.20	52.19	53.18	54.16	55.15	50	49	50	51	52	53	54	55	56	57	58	
12	47.27	48.26	49.25	50.23	51.22	52.21	53.19	54.18	55.17	0	0	1	2	3	4	5	6	7	8	9	Add
10	47.29	48.27	49.26	50.25	51.23	52.22	53.21	54.19	55.18	10	10	11	12	13	14	15	16	17	18	19	1'
20	47.31	48.29	49.28	50.26	51.25	52.23	53.22	54.21	55.19	20	20	20	21	22	23	24	25	26	27	28	2'
30	47.32	48.30	49.29	50.27	51.26	52.25	53.23	54.22	55.20	30	29	30	31	32	33	34	35	36	37	38	3'
40	47.34	48.32	49.30	50.29	51.27	52.26	53.24	54.23	55.21	40	39	40	41	42	43	44	45	46	47	48	4'
50	47.35	48.33	49.31	50.30	51.28	52.27	53.25	54.24	55.22	50	49	50	51	52	53	54	55	56	57	58	5'
13	47.35	48.34	49.32	50.31	51.29	52.28	53.26	54.25	55.23	0	0	1	2	3	4	5	6	7	8	9	5.1
10	47.36	48.35	49.33	50.32	51.30	52.28	53.27	54.25	55.24	10	10	11	12	13	14	15	16	17	18	19	6.1
20	47.37	48.36	49.34	50.32	51.31	52.29	53.28	54.26	55.24	20	19	20	21	22	23	24	25	26	27	28	7.1
30	47.38	48.36	49.35	50.33	51.31	52.30	53.28	54.26	55.25	30	29	30	31	32	33	34	35	36	37	38	8.1
40	47.39	48.37	49.35	50.34	51.32	52.30	53.29	54.27	55.25	40	39	40	41	42	43	44	45	46	47	48	9.1
50	47.40	48.38	49.36	50.34	51.32	52.31	53.29	54.27	55.25	50	49	50	51	52	53	54	55	56	57	58	
14	47.40	48.38	49.36	50.35	51.33	52.31	53.29	54.27	55.26	0	0	1	2	3	4	5	6	7	8	9	5.1
10	47.41	48.39	49.37	50.35	51.33	52.31	53.29	54.28	55.26	10	10	11	12	13	14	15	16	17	18	19	6.1
20	47.41	48.39	49.37	50.35	51.33	52.31	53.30	54.28	55.26	20	19	20	21	22	23	24	25	26	27	28	7.1
30	47.41	48.39	49.37	50.35	51.33	52.31	53.30	54.28	55.26	30	29	30	31	32	33	34	35	36	37	38	8.1
40	47.41	48.39	49.37	50.35	51.33	52.31	53.30	54.28	55.26	40	39	40	41	42	43	44	45	46	47	48	9.1
50	47.41	48.39	49.37	50.35	51.33	52.31	53.29	54.27	55.25	50	48	49	50	51	52	53	54	55	56	57	
15	47.41	48.39	49.37	50.35	51.33	52.31	53.29	54.27	55.25	0	0	1	2	3	4	5	6	7	8	9	5.1
10	47.41	48.39	49.37	50.35	51.33	52.31	53.29	54.27	55.25	10	10	11	12	13	14	15	16	17	18	19	6.1
20	47.41	48.39	49.37	50.35	51.33	52.31	53.28	54.26	55.24	20	19	20	21	22	23	24	25	26	27	28	7.1
30	47.41	48.39	49.37	50.34	51.32	52.30	53.28	54.26	55.24	30	29	30	31	32	33	34	35	36	37	38	8.1
40	47.41	48.39	49.36	50.34	51.32	52.30	53.27	54.25	55.23	40	38	39	40	41	42	43	44	45	46	47	9.1
50	47.42	48.38	49.36	50.34	51.31	52.29	53.27	54.24	55.22	50	48	49	50	51	52	53	54	55	56	57	
16	47.40	48.38	49.35	50.33	51.31	52.28	53.26	54.24	55.21	0	0	1	2	3	4	5	6	7	8	9	5.1
10	47.40	48.37	49.35	50.32	51.30	52.28	53.25	54.23	55.21	10	10	11	12	13	14	15	16	17	18	19	6.1
20	47.39	48.37	49.34	50.32	51.29	52.27	53.25	54.22	55.20	20	19	20	21	22	23	24	25	26	27	28	7.1
30	47.39	48.36	49.33	50.31	51.29	52.26	53.24	54.21	55.19	30	29	30	31	32	33	34	35	36	37	38	8.1
40	47.39	48.35	49.33	50.30	51.28	52.25	53.23	54.20	55.18	40	38	39	40	41	42	43	44	45	46	47	9.1
50	47.38	48.34	49.32	50.29	51.27	52.24	53.22	54.19	55.16	50	48	49	50	51	52	53	54	55	56	57	
17	47.37	48.34	49.31	50.29	51.26	52.23	53.21	54.18	55.15	0	0	1	2	3	4	5	6	7	8	9	5.1
10	47.35	48.33	49.30	50.27	51.25	52.22	53.19	54.17	55.14	10	10	11	12	13	14	15	16	17	18	19	6.1
20	47.34	48.32	49.29	50.26	51.24	52.21	53.18	54.15	55.13	20	19	20	21	22	23	24	25	26	27	28	7.1
30	47.34	48.31	49.28	50.25	51.22	52.20	53.17	54.14	55.11	30	29	30	31	32	33	34	35	36	37	38	8.1
40	47.33	48.30	49.27	50.24	51.21	52.18	53.16	54.13	55.10	40	38	39	40	41	42	43	44	45	46	47	9.1
50	47.32	48.29	49.26	50.23	51.20	52.17	53.14	54.11	55.8	50	48	48	49	50	51	52	53	54	55	56	
18	47.30	48.27	49.24	50.22	51.19	52.16	53.13	54.10	55.7	0	0	1	2	3	4	5	6	7	8	9	5.1
10	47.30	48.26	49.23	50.20	51.17	52.14	53.11	54.8	55.5	10	10	10	11	12	13	14	15	16	17	18	6.1
20	47.28	48.25	49.22	50.19	51.16	52.13	53.10	54.7	55.4	20	19	20	21	22	23	24	25	26	27	28	7.1
30	47.26	48.23	49.20	50.17	51.14	52.11	53.8	54.5	55.2	30	29	30	31	32	33	34	35	36	37	38	8.1
40	47.25	48.22	49.19	50.16	51.13	52.9	53.6	54.3	55.0	40	38	39	40	41	42	43	44	45	46	47	9.1
50	47.24	48.21	49.17	50.14	51.11	52.8	53.5	54.1	54.8	50	48	48	49	50	51	52	53	54	55	56	
19	47.23	48.19	49.16	50.13	51.9	52.6	53.3	54.0	54.5	0	0	1	2	3	4	5	6	7	8	9	5.1
10	47.21	48.18	49.14	50.11	51.8	52.4	53.1	53.8	54.4	10	9	10	11	12	13	14	15	16	17	18	6.1
20	47.20	48.16	49.13	50.9	51.6	52.2	52.9	53.5	54.1	20	19	20	21	22	23	24	25	26	27	28	7.1
30	47.18	48.14	49.11	50.7	51.4	52.1	52.7	53.4	54.0	30	28	29	30	31	32	33	34	35	36	37	8.1
40	47.16	48.13	49.9	50.6	51.2	51.9	52.5	53.2	54.8	40	38	39	40	41	42	43	44	45	46	47	9.1
50	47.14	48.11	49.7	50.4	51.0	51.7	52.3	53.0	54.6	50	47	48	49	50	51	52	53	54	55	56	</

TABLE XVIII.

19

CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's Horizontal Parallax.										Proportional parts to										Minutes of Altitude
										Seconds of Parallax.										
53'	54'	55'	56'	57'	58'	59'	60'	61'		"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"
47.13	48.9	49.5	50.2	50.58	51.55	52.51	53.47	54.44	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
47.11	48.7	49.3	50.0	50.56	51.52	52.49	53.45	54.41	10	9	10	11	12	13	14	15	16	17	18	
47.10	48.5	49.1	49.58	50.54	51.50	52.46	53.43	54.39	20	19	20	21	22	23	24	25	26	27	28	
47.8	48.3	48.59	49.56	50.52	51.48	52.44	53.40	54.37	30	28	29	30	31	32	33	34	35	36	37	2. 0
47.6	48.1	48.57	49.53	50.50	51.46	52.42	53.38	54.34	40	37	38	39	40	41	42	43	44	45	46	3. 1
47.4	47.59	48.55	49.51	50.47	51.44	52.40	53.36	54.32	50	47	48	49	50	51	52	53	54	55	56	4. 1
47.2	47.57	48.53	49.49	50.45	51.41	52.37	53.33	54.29	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
47.0	47.55	48.51	49.47	50.43	51.39	52.35	53.31	54.27	10	9	10	11	12	13	14	15	16	17	18	
46.57	47.53	48.49	49.45	50.40	51.36	52.32	53.28	54.24	20	19	20	21	22	23	24	25	26	27	28	
46.55	47.51	48.46	49.42	50.38	51.34	52.30	53.26	54.21	30	28	29	30	31	32	33	34	35	36	37	7. 2
46.53	47.48	48.44	49.40	50.36	51.31	52.27	53.23	54.19	40	37	38	39	40	41	42	43	44	45	46	8. 2
46.51	47.46	48.42	49.37	50.33	51.29	52.25	53.20	54.16	50	47	48	49	50	51	52	53	54	55	56	9. 2
46.49	47.44	48.39	49.35	50.31	51.26	52.22	53.18	54.13	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
46.46	47.41	48.37	49.32	50.28	51.24	52.19	53.15	54.10	10	9	10	11	12	13	14	15	16	17	18	
46.43	47.39	48.34	49.30	50.25	51.21	52.16	53.12	54.7	20	18	19	20	21	22	23	24	25	26	27	
46.41	47.36	48.32	49.27	50.23	51.18	52.14	53.9	54.4	30	28	29	30	31	32	33	34	35	36	37	2. 1
46.39	47.34	48.29	49.25	50.20	51.15	52.11	53.6	54.1	40	37	38	39	40	41	42	43	44	45	46	3. 1
46.36	47.31	48.27	49.22	50.17	51.13	52.8	53.3	53.58	50	46	47	48	49	50	51	52	53	54	55	4. 1
46.33	47.29	48.24	49.19	50.14	51.10	52.5	53.0	53.55	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
46.30	47.26	48.21	49.16	50.12	51.7	52.2	52.57	53.52	10	9	10	11	12	13	14	15	16	17	18	
46.27	47.23	48.19	49.14	50.9	51.4	51.59	52.54	53.49	20	18	19	20	21	22	23	24	25	26	27	
46.25	47.21	48.16	49.11	50.6	51.1	51.56	52.51	53.46	30	27	28	29	30	31	32	33	34	35	36	8. 2
46.22	47.18	48.13	49.8	50.3	50.58	51.53	52.48	53.43	40	36	37	38	39	40	41	42	43	44	45	9. 3
46.20	47.15	48.10	49.5	50.0	50.55	51.50	52.44	53.39	50	45	46	47	48	49	50	51	52	53	54	
46.17	47.12	48.7	49.2	49.57	50.52	51.47	52.41	53.36	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
46.14	47.10	48.4	48.59	49.54	50.48	51.43	52.38	53.33	10	9	10	11	12	13	14	15	16	17	18	
46.11	47.7	48.1	48.56	49.51	50.45	51.40	52.35	53.29	20	18	19	20	21	22	23	24	25	26	27	
46.8	47.4	47.58	48.53	49.47	50.42	51.37	52.31	53.26	30	27	28	29	30	31	32	33	34	35	36	2. 1
46.5	47.1	47.55	48.50	49.44	50.39	51.33	52.28	53.22	40	36	37	38	39	40	41	42	43	44	45	3. 1
46.3	46.58	47.52	48.47	49.41	50.35	51.30	52.24	53.19	50	45	46	47	48	49	50	51	52	53	54	4. 1
46.0	46.55	47.49	48.43	49.38	50.32	51.27	52.21	53.15	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
45.57	46.52	47.46	48.40	49.34	50.29	51.23	52.17	53.12	10	9	10	11	12	13	14	15	16	17	18	
45.54	46.48	47.43	48.37	49.31	50.25	51.20	52.14	53.8	20	18	19	20	21	22	23	24	25	26	27	
45.51	46.45	47.39	48.34	49.28	50.22	51.16	52.10	53.4	30	27	28	29	30	31	32	33	34	35	36	8. 3
45.48	46.42	47.36	48.30	49.24	50.18	51.13	52.7	53.1	40	36	37	38	39	40	41	42	43	44	45	9. 3
45.45	46.39	47.33	48.27	49.21	50.15	51.9	52.3	52.57	50	45	46	47	48	49	50	51	52	53	54	
45.42	46.36	47.30	48.23	49.17	50.11	51.5	51.59	52.53	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
45.39	46.32	47.26	48.20	49.14	50.8	51.2	51.55	52.49	10	9	10	11	12	13	14	15	16	17	18	
45.35	46.29	47.23	48.17	49.10	50.4	50.58	51.52	52.45	20	18	19	20	21	22	23	24	25	26	27	
45.32	46.26	47.19	48.13	49.7	50.0	50.54	51.48	52.41	30	27	28	29	30	31	32	33	34	35	36	2. 1
45.29	46.22	47.16	48.9	49.3	49.57	50.50	51.44	52.38	40	36	36	37	38	39	40	41	42	43	44	3. 1
45.26	46.19	47.12	48.6	48.59	49.53	50.46	51.40	52.34	50	45	46	47	48	49	50	51	52	53	54	4. 1
45.22	46.15	47.9	48.2	48.56	49.49	50.43	51.36	52.30	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
45.19	46.12	47.5	47.59	48.52	49.45	50.39	51.32	52.26	10	9	10	11	12	13	14	15	16	17	18	
45.15	46.8	47.2	47.55	48.48	49.42	50.35	51.28	52.21	20	18	19	20	21	22	23	24	25	26	27	
45.12	46.5	46.58	47.51	48.44	49.38	50.31	51.24	52.17	30	27	27	28	29	30	31	32	33	34	35	8. 3
45.8	46.1	46.54	47.47	48.40	49.34	50.27	51.20	52.13	40	35	36	37	38	39	40	41	42	43	44	9. 3
45.4	45.58	46.51	47.44	48.37	49.30	50.23	51.16	52.9	50	44	45	46	47	48	49	50	51	52	53	
45.1	45.54	46.47	47.40	48.33	49.26	50.19	51.12	52.5	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
44.57	45.50	46.43	47.36	48.29	49.22	50.15	51.8	52.0	10	9	10	11	12	13	14	15	16	17	18	
44.53	45.46	46.39	47.32	48.25	49.18	50.10	51.4	51.56	20	18	19	20	21	22	23	24	25	26	27	
44.50	45.43	46.35	47.28	48.21	49.14	50.6	50.59	51.52	30	26	27	28	29	30	31	32	33	34	35	2. 1
44.46	45.39	46.32	47.24	48.17	49.9	50.2	50.55	51.47	40	35	36	37	38	39	40	41	42	43	44	3. 1
44.42	45.35	46.28	47.20	48.13	49.5	49.58	50.50	51.43	50	44	45	46	47	48	49	50	51	52	53	4. 2
44.39	45.31	46.24	47.16	48.9	49.1	49.54	50.46	51.39	0	0	1	2	3	4	5	6	7	8	9	Subt. 1' = 0"
44.35	45.27	46.20	47.12	48.5	48.57	49.49	50.42	51.34	10	9	10	11	12	13	14	15	16	17	18	
44.31	45.23	46.16	47.8	48.0	48.53	49.45	50.37	51.30	20	17	18	19	20	21	22	23	24	25	26	
44.28	45.19	46.12	47.4	47.56	48.48	49.41	50.33	51.25	30	26	27	28	29	30	31	32	33	34	35	8. 3
44.24	45.15	46.8	47.0	47.52	48.44	49.36	50.28	51.20	40	35	36	37	37	38	39	40	41	42	43	9. 4
44.20	45.11	46.4	46.56	47.48	48.40	49.32	50.24	51.16	50	44	44	45	46	47	48	49	50	51	52	
53'	54'	55'	56'	57'	58'	59'	60'	61'	"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Minutes of Altitude
Moon's Horizontal Parallax.										Seconds of Parallax.										Proportional parts to

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CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's Horizontal Parallax.										Proportional parts to										Minutes of Altitude	
										Seconds of Parallax.											
Moon's App. Alt.	53'	54'	55'	56'	57'	58'	59'	60'	61'	"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Subt.
30°	44.16	45.7	45.59	46.51	47.43	48.35	49.27	50.19	51.11	0	0	1	2	3	4	5	6	7	8	9	1' = 0"
10	44.12	45.3	45.55	46.47	47.39	48.31	49.23	50.15	51.7	10	9	10	11	12	13	14	15	16	17	18	2' = 1"
20	44.8	44.59	45.51	46.43	47.35	48.26	49.18	50.10	51.2	20	17	18	19	20	21	22	23	24	25	26	3' = 1"
30	44.4	44.55	45.47	46.39	47.30	48.22	49.14	50.5	50.57	30	26	27	28	29	30	31	32	33	34	35	4' = 1"
40	44.0	44.51	45.43	46.34	47.26	48.17	49.9	50.1	50.52	40	34	35	36	37	38	39	40	41	42	43	5' = 1"
50	43.55	44.47	45.38	46.30	47.21	48.13	49.4	49.56	50.47	50	43	44	45	46	47	48	49	50	51	52	6' = 1"
31°	43.51	44.43	45.34	46.25	47.17	48.8	49.0	49.51	50.43	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	43.47	44.38	45.30	46.21	47.12	48.4	48.55	49.46	50.38	10	9	10	11	12	13	14	15	16	17	18	1' = 0"
20	43.43	44.34	45.25	46.17	47.8	47.59	48.50	49.42	50.33	20	17	18	19	20	21	22	23	24	25	26	2' = 1"
30	43.39	44.30	45.21	46.12	47.3	47.54	48.46	49.37	50.28	30	26	27	28	29	30	31	32	33	34	35	3' = 1"
40	43.35	44.25	45.16	46.8	46.59	47.50	48.41	49.32	50.23	40	34	35	36	37	38	39	40	41	42	43	4' = 1"
50	43.30	44.21	45.12	46.3	46.54	47.45	48.36	49.27	50.18	50	43	44	45	46	47	48	49	50	51	52	5' = 1"
32°	43.25	44.17	45.8	45.58	46.49	47.40	48.31	49.22	50.13	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	43.21	44.12	45.3	45.54	46.45	47.35	48.26	49.17	50.8	10	8	9	10	11	12	13	14	15	16	17	1' = 0"
20	43.17	44.8	44.58	45.49	46.40	47.31	48.21	49.12	50.3	20	17	18	19	20	21	22	23	24	25	26	2' = 1"
30	43.13	44.3	44.54	45.45	46.35	47.26	48.16	49.7	49.58	30	25	26	27	28	29	30	31	32	33	34	3' = 1"
40	43.8	43.59	44.49	45.40	46.30	47.21	48.11	49.2	49.52	40	33	34	35	36	37	38	39	40	41	42	4' = 1"
50	43.4	43.54	44.45	45.35	46.26	47.16	48.6	48.57	49.47	50	42	43	44	45	46	47	48	49	50	51	5' = 1"
33°	43.0	43.50	44.40	45.30	46.21	47.11	48.1	48.52	49.42	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	42.56	43.45	44.35	45.26	46.16	47.6	47.56	48.46	49.37	10	8	9	10	11	12	13	14	15	16	17	1' = 0"
20	42.51	43.40	44.31	45.21	46.11	47.1	47.51	48.41	49.31	20	17	18	19	20	21	22	23	24	25	26	2' = 1"
30	42.46	43.36	44.26	45.16	46.6	46.56	47.46	48.36	49.26	30	25	26	27	28	29	30	31	32	33	34	3' = 1"
40	42.42	43.31	44.21	45.11	46.1	46.51	47.41	48.31	49.21	40	33	34	35	36	37	38	39	40	41	42	4' = 1"
50	42.37	43.26	44.16	45.6	45.56	46.46	47.36	48.26	49.15	50	42	43	44	45	46	47	48	49	50	51	5' = 1"
34°	42.32	43.22	44.12	45.1	45.51	46.41	47.30	48.20	49.10	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	42.27	43.17	44.7	44.56	45.46	46.36	47.25	48.15	49.5	10	8	9	10	11	12	13	14	15	16	17	1' = 0"
20	42.22	43.12	44.2	44.51	45.41	46.30	47.20	48.9	48.59	20	16	17	18	19	20	21	22	23	24	25	2' = 1"
30	42.18	43.7	43.57	44.46	45.36	46.25	47.15	48.4	48.54	30	25	26	27	28	29	30	31	32	33	34	3' = 1"
40	42.14	43.3	43.52	44.41	45.31	46.20	47.9	47.59	48.48	40	33	34	35	36	37	38	39	40	41	42	4' = 1"
50	42.9	42.58	43.47	44.36	45.25	46.15	47.4	47.53	48.42	50	41	42	43	44	45	46	47	48	49	50	5' = 1"
35°	42.4	42.53	43.42	44.31	45.20	46.9	46.59	47.48	48.37	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	41.59	42.48	43.37	44.26	45.15	46.4	46.53	47.42	48.31	10	8	9	10	11	12	13	14	15	16	17	1' = 0"
20	41.55	42.43	43.32	44.21	45.10	45.59	46.48	47.37	48.26	20	16	17	18	19	20	21	22	23	24	25	2' = 1"
30	41.50	42.38	43.27	44.16	45.5	45.53	46.42	47.31	48.20	30	24	25	26	27	28	29	30	31	32	33	3' = 1"
40	41.45	42.33	43.22	44.10	44.59	45.48	46.37	47.26	48.14	40	33	34	35	36	37	38	39	40	41	42	4' = 1"
50	41.40	42.28	43.17	44.5	44.54	45.43	46.31	47.20	48.8	50	41	42	43	44	45	46	47	48	49	50	5' = 1"
36°	41.35	42.23	43.11	44.0	44.49	45.37	46.26	47.14	48.3	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	41.30	42.18	43.6	43.55	44.43	45.32	46.20	47.8	47.57	10	8	9	10	11	12	13	14	15	16	17	1' = 0"
20	41.25	42.13	43.1	43.49	44.38	45.26	46.14	47.3	47.51	20	16	17	18	19	20	21	22	23	24	25	2' = 1"
30	41.20	42.8	42.56	43.44	44.32	45.21	46.9	46.57	47.45	30	24	25	26	27	28	29	30	31	32	33	3' = 1"
40	41.14	42.2	42.51	43.39	44.27	45.15	46.3	46.51	47.39	40	32	33	34	35	36	37	38	39	40	41	4' = 1"
50	41.9	41.57	42.45	43.33	44.21	45.9	45.57	46.45	47.33	50	40	41	42	43	44	45	46	47	48	49	5' = 1"
37°	41.4	41.52	42.40	43.28	44.16	45.3	45.52	46.40	47.28	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	40.59	41.47	42.35	43.22	44.10	44.58	45.46	46.34	47.22	10	8	9	10	11	12	13	14	15	16	17	1' = 0"
20	40.54	41.42	42.29	43.17	44.5	44.52	45.40	46.28	47.16	20	16	17	18	19	20	21	22	23	24	25	2' = 1"
30	40.49	41.36	42.24	43.11	43.59	44.47	45.34	46.22	47.9	30	24	25	26	27	28	29	30	31	32	33	3' = 1"
40	40.43	41.31	42.18	43.6	43.53	44.41	45.28	46.16	47.3	40	32	33	34	35	36	37	38	39	40	41	4' = 1"
50	40.38	41.26	42.13	43.0	43.48	44.35	45.23	46.10	46.57	50	40	40	41	42	43	44	45	46	47	48	5' = 1"
38°	40.33	41.20	42.8	42.55	43.42	44.29	45.17	46.4	46.51	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	40.27	41.15	42.2	42.49	43.36	44.24	45.11	45.58	46.45	10	8	9	10	11	12	13	14	15	16	17	1' = 0"
20	40.22	41.10	41.57	42.44	43.31	44.18	45.5	45.52	46.39	20	16	16	17	18	19	20	21	22	23	24	2' = 1"
30	40.17	41.4	41.51	42.38	43.25	44.12	44.59	45.46	46.33	30	23	24	25	26	27	28	29	30	31	32	3' = 1"
40	40.12	40.59	41.45	42.32	43.19	44.6	44.53	45.40	46.27	40	31	32	33	34	35	36	37	38	39	40	4' = 1"
50	40.7	40.53	41.40	42.27	43.13	44.0	44.47	45.34	46.20	50	39	40	41	42	43	44	45	46	47	48	5' = 1"
39°	40.2	40.48	41.34	42.21	43.8	43.54	44.41	45.27	46.14	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	39.56	40.42	41.29	42.15	43.2	43.48	44.35	45.21	46.8	10	8	9	10	11	12	13	14	15	16	17	1' = 0"
20	39.50	40.37	41.23	42.9	42.56	43.42	44.29	45.15	46.1	20	15	16	17	18	19	20	21	22	23	24	2' = 1"
30	39.45	40.31	41.17	42.4	42.50	43.36	44.22	45.9	45.55	30	23	24	25	26	27	28	29	30	31	32	3' = 1"
40	39.39	40.25	41.12	41.58	42.44	43.30	44.16	45.3	45.49	40	31	32	33	34	35	36	37	38	39	40	4' = 1"
50	39.34	40.20	41.6	41.52	42.38	43.24	44.10	44.56	45.42	50	39	39	40	41	42	43	44	45	46	47	5' = 1"
Moon's App. Alt.	53'	54'	55'	56'	57'	58'	59'	60'	61'		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Minutes of Altitude
Moon's Horizontal Parallax.										Proportional parts to											
										Seconds of Parallax.											

CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to										Minutes of Altitude	
	Seconds of Parallax.										Seconds of Parallax.											
	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9		
40	39.28	40.14	41.0	41.46	42.32	43.18	44.4	44.50	45.36	0	0	1	1	2	3	4	5	5	6	7	Subt.	
10	39.22	40.8	40.54	41.40	42.26	43.12	43.58	44.44	45.29	10	8	9	10	11	12	13	14	14	15	16	1' = 1"	
20	39.17	40.3	40.49	41.34	42.20	43.6	43.51	44.37	45.22	20	15	16	17	18	19	20	21	21	22	23	2	
30	39.11	39.57	40.43	41.28	42.14	43.0	43.45	44.31	45.16	30	23	24	25	26	27	28	29	30	30	31	3	
40	39.6	39.51	40.37	41.22	42.8	42.53	43.39	44.24	45.10	40	30	31	32	33	34	35	36	37	37	38	4	
50	39.1	39.46	40.31	41.16	42.2	42.47	43.33	44.18	45.3	50	38	39	40	41	42	43	44	45	45	46	5	
41	38.55	39.40	40.25	41.10	41.56	42.41	43.26	44.11	44.57	0	0	1	1	2	3	4	4	5	5	6	Subt.	
10	38.49	39.34	40.19	41.4	41.49	42.35	43.20	44.5	44.50	10	7	8	9	10	11	12	13	13	14	15	6	
20	38.44	39.28	40.13	40.58	41.43	42.28	43.13	43.58	44.43	20	15	16	17	18	19	20	21	21	22	23	7	
30	38.38	39.22	40.7	40.52	41.37	42.22	43.7	43.52	44.37	30	22	23	24	25	26	27	28	28	29	30	8	
40	38.32	39.16	40.1	40.46	41.31	42.16	43.1	43.45	44.30	40	30	31	32	33	34	35	36	37	37	38	9	
50	38.26	39.10	39.55	40.40	41.25	42.9	42.54	43.39	44.23	50	37	38	39	40	41	42	43	44	44	45		
42	38.20	39.5	39.49	40.34	41.18	42.3	42.47	43.32	44.17	0	0	1	1	2	3	4	4	5	5	6	Subt.	
10	38.14	38.59	39.43	40.28	41.12	41.57	42.41	43.25	44.10	10	7	8	9	10	11	12	13	13	14	15	1' = 1"	
20	38.9	38.53	39.37	40.21	41.6	41.50	42.34	43.19	44.3	20	15	15	16	17	18	19	20	21	21	22	2	
30	38.3	38.47	39.31	40.15	40.59	41.44	42.28	43.12	43.56	30	22	23	24	25	26	27	28	28	29	30	3	
40	37.57	38.41	39.25	40.9	40.53	41.37	42.21	43.5	43.49	40	29	30	31	32	33	34	35	35	36	37	4	
50	37.51	38.35	39.19	40.3	40.47	41.31	42.15	42.59	43.43	50	37	38	38	39	40	41	42	43	43	44	5	
43	37.45	38.29	39.12	39.56	40.40	41.24	42.8	42.53	43.36	0	0	1	1	2	3	4	4	5	5	6	Subt.	
10	37.39	38.22	39.6	39.50	40.34	41.18	42.1	42.45	43.29	10	7	8	9	10	11	12	13	14	14	15	6	
20	37.33	38.16	39.0	39.44	40.27	41.11	41.55	42.38	43.22	20	15	15	16	17	18	19	20	21	21	22	7	
30	37.27	38.10	38.54	39.37	40.21	41.4	41.48	42.31	43.15	30	22	22	23	24	25	26	27	28	28	29	8	
40	37.21	38.4	38.47	39.31	40.14	40.58	41.41	42.24	43.8	40	29	30	30	31	32	33	34	35	36	37	9	
50	37.15	37.58	38.41	39.24	40.8	40.51	41.34	42.18	43.1	50	36	37	38	38	39	40	41	41	42	43		
44	37.8	37.52	38.35	39.18	40.1	40.44	41.28	42.11	42.54	0	0	1	1	2	3	4	4	5	5	6	Subt.	
10	37.2	37.46	38.29	39.12	39.55	40.38	41.21	42.4	42.47	10	7	8	9	10	11	12	13	14	14	15	1' = 1"	
20	36.56	37.39	38.22	39.5	39.48	40.31	41.14	41.57	42.40	20	14	15	16	17	18	19	20	21	21	22	2	
30	36.50	37.33	38.16	38.59	39.41	40.24	41.7	41.50	42.33	30	21	22	23	24	25	26	27	28	28	29	3	
40	36.45	37.27	38.9	38.52	39.35	40.17	41.0	41.43	42.25	40	29	29	30	31	32	33	34	35	36	37	4	
50	36.39	37.20	38.3	38.46	39.28	40.11	40.53	41.36	42.18	50	36	36	37	38	39	40	41	41	42	43	5	
45	36.32	37.14	37.57	38.39	39.21	40.4	40.46	41.29	42.11	0	0	1	1	2	3	4	4	5	5	6	Subt.	
10	36.25	37.8	37.50	38.32	39.15	39.57	40.39	41.22	42.4	10	7	8	8	9	10	11	12	13	13	14	6	
20	36.19	37.1	37.43	38.26	39.8	39.50	40.32	41.14	41.57	20	14	15	15	16	17	18	19	20	21	21	7	
30	36.13	36.55	37.37	38.19	39.1	39.43	40.25	41.7	41.49	30	21	22	23	24	25	26	27	28	28	29	8	
40	36.6	36.49	37.31	38.12	38.54	39.36	40.18	41.0	41.42	40	28	29	29	30	31	32	33	34	35	36	9	
50	36.0	36.42	37.24	38.6	38.48	39.29	40.11	40.53	41.35	50	35	36	36	37	38	39	40	41	41	42		
46	35.54	36.36	37.17	37.59	38.41	39.22	40.4	40.46	41.27	0	0	1	1	2	3	4	4	5	5	6	Subt.	
10	35.47	36.29	37.11	37.52	38.34	39.15	39.57	40.39	41.20	10	7	8	8	9	10	11	12	13	13	14	1' = 1"	
20	35.41	36.23	37.4	37.46	38.27	39.8	39.50	40.31	41.13	20	14	14	15	16	17	18	19	20	21	21	2	
30	35.35	36.16	36.58	37.39	38.20	39.1	39.43	40.24	41.5	30	21	21	22	23	24	25	26	27	28	28	3	
40	35.28	36.10	36.51	37.32	38.13	38.54	39.36	40.17	40.58	40	28	28	29	30	31	32	33	34	35	36	4	
50	35.22	36.3	36.44	37.25	38.6	38.47	39.28	40.9	40.50	50	34	35	36	36	37	38	39	40	41	41		
47	35.16	35.57	36.38	37.18	37.59	38.40	39.21	40.2	40.43	0	0	1	1	2	3	4	4	5	5	6	Subt.	
10	35.9	35.50	36.31	37.12	37.52	38.33	39.14	39.55	40.36	10	7	7	8	9	10	11	12	13	13	14	6	
20	35.3	35.43	36.24	37.5	37.45	38.26	39.7	39.47	40.28	20	14	14	15	16	17	18	19	20	21	21	7	
30	34.56	35.37	36.17	36.58	37.38	38.19	38.59	39.40	40.20	30	20	21	22	23	24	25	26	27	28	28	8	
40	34.50	35.30	36.10	36.51	37.31	38.12	38.52	39.32	40.13	40	27	28	28	29	30	31	32	33	34	35	9	
50	34.44	35.23	36.3	36.44	37.24	38.5	38.45	39.25	40.5	50	34	34	35	36	37	38	39	40	41	41		
48	34.37	35.17	35.57	36.37	37.17	37.57	38.37	39.18	39.58	0	0	1	1	2	3	4	4	5	5	6	Subt.	
10	34.30	35.10	35.50	36.30	37.10	37.50	38.30	39.10	39.50	10	7	7	8	9	10	11	12	13	13	14	1' = 1"	
20	34.24	35.3	35.43	36.23	37.3	37.43	38.23	39.3	39.42	20	13	14	15	16	17	18	19	20	21	21	2	
30	34.17	34.56	35.36	36.16	36.56	37.36	38.15	38.55	39.35	30	20	21	22	23	24	25	26	27	28	28	3	
40	34.10	34.50	35.29	36.9	36.49	37.28	38.8	38.47	39.27	40	27	27	28	29	30	31	32	33	34	35	4	
50	34.4	34.43	35.22	36.2	36.41	37.21	38.0	38.40	39.19	50	33	34	34	35	36	37	38	39	40	41		
49	33.57	34.36	35.15	35.55	36.34	37.14	37.53	38.32	39.12	0	0	1	1	2	3	4	4	5	5	6	Subt.	
10	33.50	34.29	35.9	35.48	36.27	37.6	37.45	38.25	39.4	10	6	7	8	9	10	11	12	12	13	14	6	
20	33.43	34.22	35.2	35.41	36.20	36.59	37.38	38.17	38.56	20	13	14	14	15	16	17	18	19	20	21	7	
30	33.36	34.16	34.55	35.34	36.12	36.51	37.30	38.9	38.48	30	19	20	21	22	23	24	25	26	27	28	8	
40	33.29	34.9	34.48	35.26	36.5	36.44	37.23	38.2	38.41	40	26	27	28	29	30	31	32	33	34	35	9	
50	33.23	34.2	34.40	35.19	35.58	36.37	37.15	37.54	38.33	50	32	33	34	35	36	37	38	39	40	41		
Moon's App. Alt.	53'	54'	55'	56'	57'	58'	59'	60'	61'	Seconds of Parallax.												Minutes of Altitude
	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9		
	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9		

CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's Horizontal Parallax.											Proportional parts to Seconds of Parallax.									
Moon's App. Alt.	53	54	55	56	57	58	59	60	61		0	1	2	3	4	5	6	7	8	9
50	33.16	33.55	34.33	35.12	35.51	36.29	37.08	37.46	38.25	0	0	1	2	3	4	5	6	7	8	9
10	33.9	33.48	34.26	35.05	35.43	36.22	37.0	37.39	38.17	10	6	7	8	9	10	11	12	13	14	15
20	33.3	33.41	34.19	34.98	35.36	36.14	36.52	37.31	38.09	20	13	14	15	16	17	17	18	19	20	21
30	32.56	33.34	34.12	34.50	35.28	36.06	36.45	37.23	38.01	30	19	20	21	22	23	24	24	25	26	27
40	32.49	33.27	34.05	34.43	35.21	35.99	36.37	37.15	37.93	40	25	26	27	28	29	30	31	32	33	34
50	32.42	33.20	33.58	34.36	35.14	35.92	36.29	37.07	37.85	50	32	33	34	35	36	37	38	39	40	41
51	32.35	33.13	33.51	34.28	35.06	35.84	36.22	36.99	37.77	0	0	1	2	3	4	5	6	7	8	9
10	32.28	33.06	33.43	34.21	34.99	35.77	36.14	36.92	37.70	10	6	7	8	9	10	11	12	13	14	15
20	32.21	32.99	33.36	34.14	34.92	35.70	36.07	36.85	37.63	20	12	13	14	15	16	17	17	18	19	20
30	32.14	32.52	33.29	34.07	34.85	35.63	36.00	36.78	37.56	30	19	20	21	22	23	24	24	25	26	27
40	32.07	32.45	33.22	33.99	34.77	35.55	35.92	36.70	37.48	40	25	26	27	28	29	30	31	32	33	34
50	32.00	32.37	33.14	33.92	34.70	35.48	35.85	36.63	37.41	50	31	32	33	34	35	36	37	38	39	40
52	31.53	32.30	33.07	33.84	34.62	35.40	35.77	36.55	37.33	0	0	1	2	3	4	5	6	7	8	9
10	31.46	32.23	33.00	33.77	34.55	35.33	35.70	36.48	37.26	10	6	7	8	9	10	11	12	13	14	15
20	31.39	32.16	32.93	33.70	34.48	35.26	35.63	36.41	37.19	20	12	13	14	15	16	17	18	19	20	21
30	31.32	32.09	32.86	33.64	34.42	35.20	35.57	36.35	37.13	30	18	19	20	21	22	23	24	25	26	27
40	31.25	32.02	32.79	33.57	34.35	35.13	35.50	36.28	37.06	40	24	25	26	27	28	29	30	31	32	33
50	31.18	31.54	32.32	33.10	33.88	34.66	35.03	35.81	36.59	50	30	31	32	33	34	35	36	37	38	39
53	31.11	31.47	32.25	33.03	33.81	34.59	34.96	35.74	36.52	0	0	1	2	3	4	5	6	7	8	9
10	31.04	31.40	32.18	32.96	33.74	34.52	34.89	35.67	36.45	10	6	7	8	9	10	11	12	13	14	15
20	30.97	31.33	32.11	32.89	33.67	34.45	34.82	35.60	36.38	20	12	13	14	15	16	17	18	19	20	21
30	30.90	31.26	32.04	32.82	33.60	34.38	34.75	35.53	36.31	30	18	19	20	21	22	23	24	25	26	27
40	30.83	31.19	31.97	32.75	33.53	34.31	34.68	35.46	36.24	40	24	25	26	27	28	29	30	31	32	33
50	30.76	31.12	31.90	32.68	33.46	34.24	34.61	35.39	36.17	50	30	31	32	33	34	35	36	37	38	39
54	30.69	31.05	31.83	32.61	33.39	34.17	34.54	35.32	36.10	0	0	1	2	3	4	5	6	7	8	9
10	30.62	30.98	31.76	32.54	33.32	34.10	34.47	35.25	36.03	10	6	7	8	9	10	11	12	13	14	15
20	30.55	30.91	31.69	32.47	33.25	34.03	34.40	35.18	35.96	20	12	13	14	15	16	17	18	19	20	21
30	30.48	30.84	31.62	32.40	33.18	33.96	34.33	35.11	35.89	30	18	19	20	21	22	23	24	25	26	27
40	30.41	30.77	31.55	32.33	33.11	33.89	34.26	35.04	35.82	40	24	25	26	27	28	29	30	31	32	33
50	30.34	30.70	31.48	32.26	33.04	33.82	34.19	34.97	35.75	50	30	31	32	33	34	35	36	37	38	39
55	30.27	30.63	31.41	32.19	32.97	33.75	34.12	34.90	35.68	0	0	1	2	3	4	5	6	7	8	9
10	30.20	30.56	31.34	32.12	32.90	33.68	34.05	34.83	35.61	10	6	7	8	9	10	11	12	13	14	15
20	30.13	30.49	31.27	32.05	32.83	33.61	33.98	34.76	35.54	20	12	13	14	15	16	17	18	19	20	21
30	30.06	30.42	31.20	31.98	32.76	33.54	33.91	34.69	35.47	30	18	19	20	21	22	23	24	25	26	27
40	29.99	30.35	31.13	31.91	32.69	33.47	33.84	34.62	35.40	40	24	25	26	27	28	29	30	31	32	33
50	29.92	30.28	31.06	31.84	32.62	33.40	33.77	34.55	35.33	50	30	31	32	33	34	35	36	37	38	39
56	29.85	30.21	30.99	31.77	32.55	33.33	33.70	34.48	35.26	0	0	1	2	3	4	5	6	7	8	9
10	29.78	30.14	30.92	31.70	32.48	33.26	33.63	34.41	35.19	10	6	7	8	9	10	11	12	13	14	15
20	29.71	30.07	30.85	31.63	32.41	33.19	33.56	34.34	35.12	20	12	13	14	15	16	17	18	19	20	21
30	29.64	30.00	30.78	31.56	32.34	33.12	33.49	34.27	35.05	30	18	19	20	21	22	23	24	25	26	27
40	29.57	29.93	30.71	31.49	32.27	33.05	33.42	34.20	34.98	40	24	25	26	27	28	29	30	31	32	33
50	29.50	29.86	30.64	31.42	32.20	32.98	33.35	34.13	34.91	50	30	31	32	33	34	35	36	37	38	39
57	29.43	29.79	30.57	31.35	32.13	32.91	33.28	34.06	34.84	0	0	1	2	3	4	5	6	7	8	9
10	29.36	29.72	30.50	31.28	32.06	32.84	33.21	33.99	34.77	10	6	7	8	9	10	11	12	13	14	15
20	29.29	29.65	30.43	31.21	31.99	32.77	33.14	33.92	34.70	20	12	13	14	15	16	17	18	19	20	21
30	29.22	29.58	30.36	31.14	31.92	32.70	33.07	33.85	34.63	30	18	19	20	21	22	23	24	25	26	27
40	29.15	29.51	30.29	31.07	31.85	32.63	33.00	33.78	34.56	40	24	25	26	27	28	29	30	31	32	33
50	29.08	29.44	30.22	31.00	31.78	32.56	32.93	33.71	34.49	50	30	31	32	33	34	35	36	37	38	39
58	29.01	29.37	30.15	30.93	31.71	32.49	32.86	33.64	34.42	0	0	1	2	3	4	5	6	7	8	9
10	28.94	29.30	30.08	30.86	31.64	32.42	32.79	33.57	34.35	10	6	7	8	9	10	11	12	13	14	15
20	28.87	29.23	30.01	30.79	31.57	32.35	32.72	33.50	34.28	20	12	13	14	15	16	17	18	19	20	21
30	28.80	29.16	29.94	30.72	31.50	32.28	32.65	33.43	34.21	30	18	19	20	21	22	23	24	25	26	27
40	28.73	29.09	29.87	30.65	31.43	32.21	32.58	33.36	34.14	40	24	25	26	27	28	29	30	31	32	33
50	28.66	29.02	29.80	30.58	31.36	32.14	32.51	33.29	34.07	50	30	31	32	33	34	35	36	37	38	39
59	28.59	28.95	29.73	30.51	31.29	32.07	32.44	33.22	34.00	0	0	1	2	3	4	5	6	7	8	9
10	28.52	28.88	29.66	30.44	31.22	32.00	32.37	33.15	33.93	10	6	7	8	9	10	11	12	13	14	15
20	28.45	28.81	29.59	30.37	31.15	31.93	32.30	33.08	33.86	20	12	13	14	15	16	17	18	19	20	21
30	28.38	28.74	29.52	30.30	31.08	31.86	32.23	33.01	33.79	30	18	19	20	21	22	23	24	25	26	27
40	28.31	28.67	29.45	30.23	31.01	31.79	32.16	32.94	33.72	40	24	25	26	27	28	29	30	31	32	33
50	28.24	28.60	29.38	30.16	30.94	31.72	32.09	32.87	33.65	50	30	31	32	33	34	35	36	37	38	39
51	28.17	28.53	29.31	30.09	30.87	31.65	32.02	32.80	33.58	0	0	1	2	3	4	5	6	7	8	9
10	28.10	28.46	29.24	30.02	30.80	31.58	31.95	32.73	33.51	10	6	7	8	9	10	11	12	13	14	15
20	28.03	28.39	29.17	29.95	30.73	31.51	31.88	32.66	33.44											

TABLE XVIII.

2

CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's Horizontal Parallax.											Proportional parts to											Minutes of Altitude	
											Seconds of Parallax.												
Moon's App. Alt.	53'	54'	55'	56'	57'	58'	59'	60'	61'		"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
60	25.57	26.27	26.57	27.27	27.57	28.27	28.57	29.27	29.57	0	0	0	0	1	2	3	4	5	6	7	8	9	Subt.
10	25.49	26.19	26.49	27.19	27.49	28.19	28.48	29.18	29.48	10	5	5	6	6	7	7	8	8	9	9	9	9	1' = 1"
20	25.41	26.11	26.41	27.11	27.40	28.10	28.40	29.9	29.39	20	10	10	11	11	12	12	13	13	14	14	14	14	2.
30	25.33	26.3	26.33	27.2	27.32	28.1	28.31	29.0	29.30	30	15	15	16	16	17	17	18	18	19	19	19	2.	3.
40	25.26	25.55	26.25	26.54	27.23	27.53	28.22	28.52	29.21	40	20	20	21	21	22	22	23	23	24	24	24	3.	3.
50	25.18	25.47	26.16	26.46	27.15	27.44	28.13	28.43	29.12	50	25	25	26	26	27	27	28	28	29	29	29	4.	3.
61	25.10	25.39	26.8	26.37	27.6	27.36	28.5	28.34	29.3	0	0	0	1	2	2	3	3	4	4	5	4	5.	4.
10	25.2	25.31	26.0	26.29	26.58	27.27	27.56	28.25	28.54	10	5	5	6	6	7	7	8	8	9	9	9	6.	5.
20	24.54	25.23	25.52	26.21	26.49	27.18	27.47	28.16	28.45	20	10	10	11	11	12	12	13	13	14	14	14	7.	6.
30	24.47	25.15	25.44	26.12	26.41	27.10	27.38	28.7	28.35	30	14	15	15	16	16	17	17	18	18	19	8.	7.	
40	24.39	25.7	25.35	26.4	26.32	27.1	27.29	27.58	28.26	40	19	20	20	21	21	22	22	23	23	24	9.	8.	
50	24.31	24.59	25.27	25.56	26.24	26.52	27.21	27.49	28.17	50	24	24	25	25	26	26	27	27	28	28			
62	24.23	24.51	25.19	25.47	26.15	26.43	27.12	27.40	28.8	0	0	0	1	2	2	3	3	4	4			Subt.	
10	24.15	24.43	25.11	25.39	26.7	26.35	27.3	27.31	27.59	10	5	5	6	6	7	7	8	8	9			1' = 1"	
20	24.7	24.35	25.2	25.30	25.58	26.26	26.54	27.22	27.50	20	9	10	10	11	11	12	12	13	13			2.	
30	23.59	24.26	24.54	25.22	25.50	26.17	26.45	27.13	27.40	30	14	14	15	15	16	16	17	17	18			3.	
40	23.51	24.18	24.46	25.13	25.41	26.8	26.36	27.4	27.31	40	18	19	19	20	20	21	21	22	22			3.	
50	23.43	24.10	24.37	25.5	25.32	26.0	26.27	26.54	27.22	50	23	24	24	25	25	26	26	27	27			4.	
63	23.35	24.2	24.29	24.56	25.24	25.51	26.18	26.45	27.13	0	0	0	1	2	2	3	3	3	4			5.	
10	23.27	23.54	24.21	24.48	25.15	25.42	26.9	26.36	27.3	10	4	5	5	6	6	7	7	8	8			6.	
20	23.18	23.45	24.12	24.39	25.6	25.33	26.0	26.27	26.54	20	9	9	10	10	11	11	12	12	13			7.	
30	23.10	23.37	24.4	24.31	24.58	25.24	25.51	26.18	26.45	30	13	14	14	15	15	16	16	17	17			8.	
40	23.2	23.29	23.56	24.22	24.49	25.15	25.42	26.9	26.35	40	18	18	19	19	20	20	21	21	22			9.	
50	23.54	23.21	23.47	24.14	24.40	25.7	25.33	26.0	26.26	50	22	22	23	23	24	24	25	25	26				
64	22.46	23.13	23.39	24.5	24.31	24.58	25.24	25.50	26.17	0	0	0	1	2	2	3	3	3	4			Subt.	
10	22.38	23.4	23.30	23.57	24.22	24.49	25.15	25.41	26.7	10	4	5	5	6	6	7	7	8	8			1' = 1"	
20	22.30	22.56	23.22	23.48	24.14	24.40	25.6	25.32	25.58	20	9	9	9	10	10	11	11	12	12			2.	
30	22.21	22.48	23.14	23.39	24.5	24.31	24.57	25.23	25.48	30	13	13	14	14	15	15	16	16	17			3.	
40	22.13	22.39	23.5	23.31	23.56	24.22	24.48	25.13	25.39	40	17	18	18	19	19	20	20	21	21			3.	
50	22.5	22.31	22.57	23.22	23.48	24.13	24.39	25.4	25.30	50	22	22	23	23	24	24	25	25	26			4.	
65	21.57	22.23	22.48	23.13	23.39	24.4	24.30	24.55	25.20	0	0	0	1	2	2	3	3	3	4			5.	
10	21.49	22.14	22.40	23.5	23.30	23.55	24.20	24.46	25.11	10	4	5	5	6	6	7	7	7	8			6.	
20	21.41	22.6	22.31	22.56	23.21	23.46	24.11	24.36	25.1	20	8	9	9	10	10	11	11	12	12			7.	
30	21.33	21.58	22.23	22.47	23.12	23.37	24.2	24.27	24.52	30	12	13	13	14	14	15	15	16	16			8.	
40	21.25	21.49	22.14	22.39	23.3	23.28	23.53	24.18	24.43	40	17	17	18	18	19	19	20	20	21			9.	
50	21.17	21.41	22.5	22.30	22.55	23.19	23.44	24.8	24.33	50	21	21	22	22	23	23	24	24	24				
66	21.9	21.32	21.57	22.21	22.46	23.10	23.34	23.59	24.23	0	0	0	1	2	2	3	3	3	4			Subt.	
10	21.0	21.24	21.48	22.13	22.37	23.1	23.25	23.50	24.14	10	4	4	5	5	6	6	7	7	8			1' = 1"	
20	20.51	21.16	21.40	22.4	22.28	22.52	23.16	23.40	24.4	20	8	8	9	9	10	10	11	11	12			2.	
30	20.43	21.7	21.31	21.55	22.19	22.43	23.7	23.31	23.55	30	12	12	13	13	14	14	15	15	16			3.	
40	20.35	20.59	21.22	21.46	22.10	22.34	22.58	23.21	23.45	40	16	16	17	17	18	18	19	19	20			3.	
50	20.27	20.50	21.14	21.37	22.1	22.25	22.48	23.12	23.35	50	20	20	21	21	22	22	23	23	24			4.	
67	20.19	20.42	21.5	21.29	21.52	22.16	22.39	23.2	23.26	0	0	0	1	2	2	3	3	3	4			5.	
10	20.10	20.33	20.57	21.20	21.43	22.6	22.30	22.53	23.16	10	4	4	5	5	6	6	7	7	8			6.	
20	20.1	20.25	20.48	21.11	21.34	21.57	22.20	22.44	23.7	20	8	8	8	9	9	10	10	11	11			7.	
30	19.53	20.16	20.39	21.2	21.25	21.48	22.11	22.34	22.57	30	11	12	12	13	13	14	14	15	15			8.	
40	19.45	20.7	20.31	20.53	21.16	21.39	22.2	22.25	22.47	40	15	16	16	17	17	18	18	19	19			9.	
50	19.37	19.59	20.22	20.45	21.7	21.30	21.52	22.15	22.38	50	19	19	20	20	21	21	22	22	22				
68	19.28	19.51	20.13	20.36	20.58	21.21	21.43	22.6	22.28	0	0	0	1	2	2	3	3	3	4			Subt.	
10	19.20	19.42	20.4	20.27	20.49	21.11	21.34	21.56	22.18	10	4	4	5	5	6	6	7	7	8			1' = 1"	
20	19.11	19.34	19.56	20.18	20.40	21.2	21.24	21.47	22.9	20	7	8	8	9	9	10	10	11	11			2.	
30	19.3	19.25	19.47	20.9	20.31	20.53	21.15	21.37	21.59	30	11	12	12	13	13	14	14	15	15			3.	
40	18.55	19.16	19.38	20.0	20.22	20.44	21.6	21.27	21.49	40	15	15	16	16	17	17	18	18	19			3.	
50	18.46	19.8	19.30	19.51	20.13	20.35	20.56	21.18	21.39	50	18	19	19	20	20	21	21	22	22			4.	
69	18.38	18.59	19.21	19.42	20.4	20.25	20.47	21.8	21.30	0	0	0	1	2	2	3	3	3	4			5.	
10	18.30	18.51	19.12	19.33	19.55	20.16	20.37	20.58	21.20	10	4	4	5	5	6	6	7	7	8			5.	
20	18.20	18.42	19.3	19.24	19.46	20.7	20.28	20.49	21.10	20	7	7	8	8	9	9	10	10	11			6.	
30	18.12	18.34	18.54	19.15	19.36	19.57	20.18	20.39	21.0	30	11	11	12	12	13	13	14	14	15			7.	
40	18.4	18.25	18.46	19.6	19.27	19.48	20.9	20.30	20.50	40	14	14	15	15	16	16	17	17	18			8.	
50	17.55	18.10	18.37	18.57	19.18	19.39	19.59	20.20	20.40	50	18	18	19	19	20	20	21	21	22			9.	
Moon's App. Alt.	53'	54'	55'	56'	57'	58'	59'	60'	61'		"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Minutes of Altitude	
Moon's Horizontal Parallax.											Proportional parts to												
											Seconds of Parallax.												

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CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's App. Alt.	Moon's Horizontal Parallax.											Proportional parts to Seconds of Parallax.												Minute of Altitude
	53'	54'	55'	56'	57'	58'	59'	60'	61'	"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"				
	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
70	17.47	18.7	18.28	18.48	19.9	19.30	19.50	20.11	20.31	0	0	0	1	1	2	2	2	3	3	3	Subt 1' = 1"			
10	17.38	17.59	18.19	18.39	19.0	19.20	19.41	20.1	20.21	10	3	4	4	4	5	5	6	6	6	6				
20	17.29	17.50	18.10	18.30	18.51	19.11	19.31	19.51	20.11	20	7	7	7	8	8	8	9	9	9	10				
30	17.21	17.41	18.1	18.21	18.41	19.1	19.22	19.42	20.2	30	10	10	11	11	11	12	12	12	13	13				
40	17.13	17.33	17.53	18.12	18.32	18.52	19.12	19.32	19.52	40	13	14	14	14	15	15	16	16	16	16				
50	17.5	17.24	17.44	18.3	18.23	18.43	19.2	19.22	19.42	50	17	17	17	18	18	18	19	19	19	20				
71	16.56	17.15	17.35	17.54	18.14	18.33	18.53	19.12	19.32	0	0	0	1	1	2	2	2	3	3	3	Subt 1' = 1"			
10	16.47	17.6	17.26	17.45	18.5	18.24	18.43	19.3	19.22	10	3	3	4	4	4	5	5	5	6	6				
20	16.39	16.58	17.17	17.36	17.55	18.15	18.34	18.53	19.12	20	6	7	7	7	8	8	8	9	9	9				
30	16.30	16.49	17.8	17.27	17.46	18.5	18.24	18.43	19.2	30	10	10	10	11	11	11	12	12	12	12				
40	16.22	16.40	16.59	17.18	17.37	17.56	18.15	18.33	18.52	40	13	13	13	14	14	14	15	15	15	16				
50	16.13	16.31	16.50	17.9	17.28	17.46	18.5	18.24	18.42	50	16	16	16	17	17	17	18	18	18	19				
72	16.4	16.23	16.41	17.0	17.18	17.37	17.55	18.14	18.32	0	0	0	1	1	2	2	2	3	3	3	Subt 1' = 1"			
10	15.56	16.14	16.32	16.51	17.9	17.27	17.46	18.4	18.23	10	3	3	4	4	4	5	5	5	6	6				
20	15.47	16.5	16.23	16.42	17.0	17.18	17.36	17.54	18.13	20	6	6	7	7	7	8	8	8	9	9				
30	15.38	15.56	16.14	16.32	16.50	17.9	17.26	17.45	18.3	30	9	9	10	10	10	11	11	11	12	12				
40	15.30	15.48	16.5	16.23	16.41	16.59	17.17	17.35	17.53	40	12	12	13	13	13	14	14	14	15	15				
50	15.22	15.39	15.56	16.14	16.32	16.50	17.7	17.25	17.43	50	15	15	16	16	16	17	17	17	18	18				
73	15.13	15.30	15.47	16.5	16.22	16.40	16.58	17.15	17.33	0	0	0	1	1	1	2	2	2	3	3	Subt 1' = 1"			
10	15.4	15.21	15.38	15.56	16.13	16.31	16.48	17.5	17.23	10	3	3	3	4	4	4	5	5	5	6				
20	14.55	15.12	15.29	15.47	16.4	16.21	16.38	16.55	17.13	20	6	6	6	7	7	7	8	8	8	9				
30	14.46	15.3	15.20	15.37	15.54	16.12	16.29	16.46	17.3	30	9	9	9	10	10	10	11	11	11	12				
40	14.38	14.54	15.11	15.28	15.45	16.2	16.19	16.36	16.53	40	11	12	12	12	13	13	13	14	14	14				
50	14.29	14.46	15.2	15.19	15.36	15.52	16.9	16.26	16.43	50	14	14	15	15	15	16	16	16	17	17				
74	14.21	14.37	14.53	15.10	15.26	15.43	15.59	16.16	16.33	0	0	0	1	1	1	2	2	2	3	3	Subt 1' = 1"			
10	14.12	14.28	14.44	15.1	15.17	15.33	15.50	16.6	16.22	10	3	3	3	4	4	4	5	5	5	6				
20	14.3	14.19	14.35	14.51	15.8	15.24	15.40	15.56	16.12	20	5	6	6	6	7	7	7	7	8	8				
30	13.54	14.10	14.26	14.42	14.58	15.14	15.30	15.46	16.2	30	8	8	8	9	9	9	10	10	10	10				
40	13.40	14.1	14.17	14.33	14.49	15.5	15.20	15.36	15.52	40	11	11	11	12	12	12	13	13	13	14				
50	13.37	13.52	14.8	14.24	14.39	14.55	15.11	15.26	15.42	50	13	14	14	14	15	15	15	16	16	16				
75	13.28	13.43	13.59	14.14	14.30	14.45	15.1	15.16	15.32	0	0	0	1	1	1	2	2	2	3	3	Subt 1' = 1"			
10	13.19	13.34	13.50	14.5	14.20	14.36	14.51	15.7	15.22	10	3	3	3	4	4	4	5	5	5	6				
20	13.10	13.25	13.41	13.56	14.11	14.26	14.41	14.57	15.12	20	5	5	6	6	6	7	7	7	7	8				
30	13.1	13.16	13.32	13.47	14.2	14.17	14.32	14.47	15.2	30	8	8	8	8	9	9	9	10	10	10				
40	12.52	13.8	13.22	13.37	13.52	14.7	14.22	14.37	14.52	40	10	10	11	11	11	12	12	12	13	13				
50	12.43	12.59	13.13	13.28	13.43	13.57	14.12	14.27	14.41	50	13	13	13	14	14	14	15	15	15	16				
76	12.35	12.50	13.4	13.19	13.33	13.48	14.2	14.17	14.31	0	0	0	1	1	1	2	2	2	3	3	Subt 1' = 1"			
10	12.26	12.41	12.55	13.9	13.24	13.38	13.52	14.7	14.21	10	2	3	3	3	4	4	4	4	4	4				
20	12.17	12.32	12.46	13.0	13.14	13.28	13.43	13.57	14.11	20	5	5	5	6	6	6	7	7	7	7				
30	12.8	12.23	12.37	12.51	13.5	13.19	13.33	13.47	14.1	30	7	7	7	8	8	8	8	9	9	9				
40	11.59	12.14	12.28	12.41	12.55	13.9	13.23	13.37	13.51	40	9	10	10	10	10	11	11	11	11	11				
50	11.51	12.5	12.18	12.32	12.46	12.59	13.13	13.27	13.40	50	12	12	12	12	13	13	13	14	14	14				
77	11.42	11.56	12.9	12.23	12.36	12.50	13.3	13.17	13.30	0	0	0	1	1	1	2	2	2	3	3	Subt 1' = 1"			
10	11.33	11.47	12.0	12.13	12.27	12.40	12.53	13.7	13.20	10	2	2	3	3	3	4	4	4	4	4				
20	11.24	11.38	11.51	12.4	12.17	12.30	12.43	12.57	13.10	20	4	5	5	5	6	6	6	6	6	6				
30	11.15	11.29	11.42	11.55	12.8	12.21	12.34	12.47	13.0	30	7	7	7	7	8	8	8	8	9	9				
40	11.6	11.20	11.32	11.45	11.58	12.11	12.24	12.37	12.49	40	9	9	9	9	10	10	10	10	10	10				
50	10.58	11.11	11.23	11.36	11.49	12.1	12.14	12.26	12.39	50	11	11	11	12	12	12	12	13	13	13				
78	10.49	11.2	11.14	11.26	11.39	11.51	12.4	12.16	12.29	0	0	0	1	1	1	1	2	2	2	2	Subt 1' = 1"			
10	10.40	10.52	11.5	11.17	11.29	11.42	11.54	12.6	12.19	10	2	2	2	3	3	3	3	4	4	4				
20	10.31	10.43	10.56	11.8	11.20	11.32	11.44	11.56	12.8	20	4	4	4	5	5	5	5	6	6	6				
30	10.22	10.34	10.46	10.58	11.10	11.22	11.34	11.46	11.58	30	6	6	6	7	7	7	7	8	8	8				
40	10.14	10.25	10.37	10.49	11.1	11.12	11.24	11.36	11.48	40	8	8	8	9	9	9	9	10	10	10				
50	10.5	10.16	10.28	10.39	10.51	11.3	11.14	11.26	11.38	50	10	10	10	11	11	11	11	12	12	12				
79	9.56	10.7	10.19	10.30	10.41	10.53	11.4	11.16	11.27	0	0	0	1	1	1	1	1	2	2	2	Subt 1' = 1"			
10	9.47	9.58	10.9	10.21	10.32	10.43	10.54	11.6	11.17	10	2	2	2	3	3	3	3	3	3	3				
20	9.38	9.49	10.0	10.11	10.22	10.33	10.44	10.56	11.7	20	4	4	4	4	5	5	5	5	5	5				
30	9.29	9.40	9.51	10.2	10.13	10.24	10.35	10.46	10.57	30	5	6	6	6	6	7	7	7	7	7				
40	9.20	9.31	9.42	9.52	10.3	10.14	10.25	10.35	10.46	40	7	7	8	8	8	8	8	9	9	9				
50	9.11	9.22	9.32	9.43	9.53	10.4	10.15	10.25	10.36	50	9	9	9	10	10	10	10	10	11	11				

CORRECTION OF THE MOON'S APPARENT ALTITUDE.

Moon's Horizontal Parallax.								Proportional parts to Seconds of Parallax.										Minutes of Altitude	
54'	55'	56'	57'	58'	59'	60'	61'	"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	
9.13	9.23	9.33	9.44	9.54	10. 5	10.15	10.25	0	0	0	0	0	1	1	1	1	1	1	Subt. 1' = 1"
9. 3	9.14	9.24	9.34	9.44	9.55	10. 5	10.15	10	2	2	2	2	2	3	3	3	3	3	
8.54	9. 4	9.15	9.25	9.35	9.45	9.55	10. 5	20	3	3	4	4	4	4	4	5	5	5	
8.45	8.55	9. 5	9.15	9.25	9.35	9.45	9.55	30	5	5	5	5	6	6	6	6	6	6	
8.36	8.46	8.56	9. 5	9.15	9.25	9.34	9.44	40	7	7	7	7	7	7	8	8	8	8	
8.27	8.37	8.46	8.56	9. 5	9.15	9.24	9.34	50	8	8	9	9	9	9	9	9	10	10	4. 4
8.18	8.27	8.37	8.46	8.55	9. 5	9.14	9.24	0	0	0	0	0	1	1	1	1	1	1	Subt. 1' = 1"
8. 9	8.18	8.27	8.36	8.46	8.55	9. 4	9.13	10	1	2	2	2	2	2	3	3	3	3	
8. 0	8. 9	8.18	8.27	8.36	8.45	8.54	9. 3	20	3	3	3	3	4	4	4	4	4	4	
7.50	7.59	8. 8	8.17	8.26	8.35	8.44	8.52	30	4	5	5	5	5	5	5	6	6	6	
7.41	7.50	7.59	8. 7	8.16	8.25	8.33	8.42	40	6	6	6	6	7	7	7	7	7	7	
7.32	7.41	7.49	7.58	8. 6	8.15	8.23	8.32	50	7	8	8	8	8	8	8	9	9	9	9. 9
7.23	7.31	7.40	7.48	7.56	8. 5	8.13	8.21	0	0	0	0	0	1	1	1	1	1	1	Subt. 1' = 1"
7.14	7.22	7.30	7.38	7.46	7.55	8. 3	8.11	10	1	1	2	2	2	2	2	2	2	2	
7. 5	7.13	7.21	7.29	7.37	7.45	7.53	8. 1	20	3	3	3	3	3	3	4	4	4	4	
6.55	7. 3	7.11	7.19	7.27	7.35	7.42	7.50	30	4	4	4	4	4	5	5	5	5	5	
6.46	6.54	7. 2	7. 9	7.17	7.25	7.32	7.40	40	5	5	5	5	6	6	6	6	6	6	
6.37	6.45	6.52	7. 0	7. 7	7.14	7.22	7.29	50	7	7	7	7	7	7	7	7	8	8	4. 4
6.28	6.35	6.42	6.50	6.57	7. 4	7.12	7.19	0	0	0	0	0	0	1	1	1	1	1	Subt. 1' = 1"
6.19	6.26	6.33	6.40	6.47	6.54	7. 2	7. 9	10	1	1	1	1	2	2	2	2	2	2	
6. 9	6.16	6.23	6.30	6.37	6.44	6.51	6.58	20	2	2	2	3	3	3	3	3	3	3	
6. 0	6. 7	6.14	6.21	6.27	6.34	6.41	6.48	30	3	4	4	4	4	4	4	4	4	4	
5.51	5.58	6. 4	6.11	6.18	6.24	6.31	6.37	40	5	5	5	5	5	5	5	5	5	6	
5.42	5.48	5.55	6. 1	6. 8	6.14	6.21	6.27	50	6	6	6	6	6	6	6	7	7	7	5. 5
5.33	5.39	5.45	5.52	5.58	6. 4	6.10	6.17	0	0	0	0	0	0	0	1	1	1	1	Subt. 1' = 1"
5.23	5.30	5.36	5.42	5.48	5.54	6. 0	6. 6	10	1	1	1	1	1	1	2	2	2	2	
5.14	5.20	5.26	5.32	5.38	5.44	5.50	5.56	20	2	2	2	2	2	2	2	3	3	3	
5. 5	5.11	5.17	5.22	5.28	5.34	5.40	5.45	30	3	3	3	3	3	3	3	4	4	4	
4.55	5. 1	5. 7	5.13	5.18	5.24	5.29	5.35	40	4	4	4	4	4	4	4	5	5	5	
4.46	4.52	4.57	5. 3	5. 8	5.14	5.19	5.24	50	5	5	5	5	5	5	5	5	6	6	4. 4
4.37	4.43	4.48	4.53	4.58	5. 4	5. 9	5.14	0	0	0	0	0	0	0	0	1	1	1	Subt. 1' = 1"
4.28	4.33	4.38	4.43	4.48	4.53	4.59	5. 4	10	1	1	1	1	1	1	1	1	1	1	
4.19	4.24	4.29	4.34	4.38	4.43	4.48	4.53	20	2	2	2	2	2	2	2	2	2	2	
4.10	4.14	4.19	4.24	4.29	4.33	4.38	4.43	30	2	2	2	3	3	3	3	3	3	3	
4. 0	4. 5	4.10	4.14	4.19	4.23	4.28	4.32	40	3	3	3	3	3	4	4	4	4	4	
3.51	3.56	4. 0	4. 4	4. 9	4.13	4.17	4.22	50	4	4	4	4	4	4	4	5	5	5	8. 8
3.42	3.46	3.50	3.55	3.59	4. 3	4. 7	4.11	0	0	0	0	0	0	0	0	0	0	0	Subt. 1' = 1"
3.33	3.37	3.41	3.45	3.49	3.53	3.57	4. 1	10	1	1	1	1	1	1	1	1	1	1	
3.24	3.27	3.31	3.35	3.39	3.43	3.47	3.50	20	1	1	1	1	1	2	2	2	2	2	
3.14	3.18	3.22	3.25	3.29	3.33	3.36	3.40	30	2	2	2	2	2	2	2	2	2	2	
3. 5	3. 9	3.12	3.16	3.19	3.23	3.26	3.30	40	2	3	3	3	3	3	3	3	3	3	
2.56	2.59	3. 2	3. 6	3. 9	3.12	3.16	3.19	50	3	3	3	3	3	3	3	3	4	4	3. 3
2.46	2.50	2.53	2.56	2.59	3. 2	3. 5	3. 9	0	0	0	0	0	0	0	0	0	0	0	Subt. 1' = 1"
2.37	2.40	2.43	2.46	2.49	2.52	2.55	2.58	10	0	0	1	1	1	1	1	1	1	1	
2.28	2.31	2.34	2.36	2.39	2.42	2.45	2.48	20	1	1	1	1	1	1	1	1	1	1	
2.19	2.21	2.24	2.27	2.29	2.32	2.35	2.37	30	1	1	1	1	1	1	2	2	2	2	
2.10	2.12	2.14	2.17	2.19	2.22	2.24	2.27	40	2	2	2	2	2	2	2	2	2	2	
2. 0	2. 3	2. 5	2. 7	2. 9	2.12	2.14	2.16	50	2	2	2	2	2	2	2	2	3	3	9. 9
1.51	1.53	1.55	1.57	1.59	2. 2	2. 4	2. 6	0	0	0	0	0	0	0	0	0	0	0	Subt. 1' = 1"
1.42	1.44	1.46	1.48	1.50	1.51	1.53	1.55	10	0	0	0	0	0	0	0	0	0	0	
1.33	1.34	1.36	1.38	1.40	1.41	1.43	1.45	20	1	1	1	1	1	1	1	1	1	1	
1.23	1.25	1.26	1.28	1.30	1.31	1.33	1.34	30	1	1	1	1	1	1	1	1	1	1	
1.14	1.15	1.17	1.18	1.20	1.21	1.22	1.24	40	1	1	1	1	1	1	1	1	1	1	
1. 5	1. 6	1. 7	1. 8	1.10	1.11	1.12	1.13	50	1	1	1	1	1	1	1	1	2	2	4. 4
0.56	0.57	0.58	0.59	1. 0	1. 1	1. 2	1. 3	0	0	0	0	0	0	0	0	0	0	0	Subt. 1' = 1"
0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.52	10	0	0	0	0	0	0	0	0	0	0	
0.37	0.38	0.38	0.39	0.40	0.41	0.41	0.42	20	0	0	0	0	0	0	0	0	0	0	
0.28	0.28	0.29	0.29	0.30	0.30	0.31	0.31	30	0	0	0	0	0	0	0	0	0	0	
0.18	0.19	0.19	0.20	0.20	0.20	0.21	0.21	40	0	0	0	0	0	0	0	0	0	0	
0. 9	0. 9	0.10	0.10	0.10	0.10	0.10	0.10	50	1	1	1	1	1	1	1	1	1	1	9. 9
54'	55'	56'	57'	58'	59'	60'	61'	Seconds of Parallax.										Minutes of Altitude	
Moon's Horizontal Parallax.								Proportional parts to											

TO REDUCE THE TRUE ALTITUDES OF THE SUN, MOON, STARS, AND PLANETS TO THEIR APPARENT ALTITUDES.

Reduction of the Moon's true Altitude.																	Difference to 1' of Moon's true Altitude.	Difference to 1' of Moon's Horizontal Parallax.																																																																																	
True Alt. of the Sun, or Star.	Reduction of the Sun's true Altitude.	Reduction of a Star's true Altitude.	Difference to 1' of Alt. for Sun, or Star.	Moon's true Alt.	Moon's Horizontal Parallax.																																																																																														
					53'	54'	55'	56'	57'	58'	59'	60'	61'																																																																																						
					1	2	3	4	5	6	7	8	9	10	11	12			13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
1. 0	21.53	22. 2	5.40	1. 0	25.15	26. 8	27. 1	27.54	28.47	29.40	30.32	31.25	32.18	33.11	34.04	34.97	35.90	7.20	0.88																																																																																
10 20	59 21. 8	5.20		10 20	26.28	27. 1	28.13	29. 6	29.59	30.52	31.45	32.38	33.31	34.24	35.17	36.10	37.03	7.00	0.88																																																																																
20 30	7.20 16.4	8.0		20 30	27.36	28. 29	29.23	30.16	31. 9	32. 3	33.25	34.18	35.11	36.04	36.97	37.90	38.83	6.60	0.88																																																																																
30 40	19.19 19.28	4.60		30 40	28.40	29. 34	30.27	31. 21	32.15	33. 9	34. 2	35.15	36.08	37.01	37.94	38.87	39.80	6.20	0.90																																																																																
40 50	18.33 18.42	4.40		40 50	29.42	30.36	31.29	32.23	33.17	34.11	35. 5	35.58	36.51	37.44	38.37	39.30	40.23	6.00	0.90																																																																																
50 60	17.49 17.58	4.20		50 60	30.40	31.34	32.28	33.22	34.16	35.11	36. 5	36.58	37.51	38.44	39.37	40.30	41.23	5.70	0.90																																																																																
2. 0	17. 7	17.16	3.90	2. 0	31.35	32.29	33.24	34.19	35.13	36. 8	37. 3	38.26	39.19	40.12	41.05	41.98	42.91	5.40	0.91																																																																																
10 20	16.28 16.37	3.70		10 20	32.27	33.22	34.17	35.12	36. 7	37. 1	38.04	38.97	39.90	40.83	41.76	42.69	43.62	5.10	0.91																																																																																
20 30	15.51 16. 0	3.40		20 30	33.17	34.12	35. 7	36. 2	37. 1	38.04	38.97	39.90	40.83	41.76	42.69	43.62	44.55	4.65	0.91																																																																																
30 40	14.43 14.52	3.00		30 40	34.48	35.43	36.39	37.35	38.30	39.25	40.20	41.16	42.12	43.08	44.04	45.00	45.96	4.20	0.92																																																																																
40 50	13.43 13.52	2.70		40 50	36. 9	37. 5	38. 1	39.08	40.04	41.00	41.96	42.92	43.88	44.84	45.80	46.76	47.72	3.70	0.92																																																																																
50 60	12.49 12.58	2.40		50 60	37.22	38.19	39.15	40.12	41. 8	42. 4	43.40	44.36	45.32	46.28	47.24	48.20	49.16	3.30	0.92																																																																																
60 70	12.12 12.20	2.20		60 70	38.26	39.23	40.19	41.16	42.13	43.10	44. 7	45. 4	46. 1	47. 0	47.96	48.92	49.88	2.90	0.95																																																																																
3. 0	11.17 11.26	1.95		3. 0	39.23	40.20	41.17	42.14	43.11	44. 9	45. 6	46. 3	47. 0	47.96	48.92	49.88	50.84	2.60	0.95																																																																																
10 20	10.38 10.47	1.80		10 20	40.13	41.11	42. 8	43. 6	44. 3	45. 1	45. 8	46. 5	47. 3	48.20	49.16	50.12	51.08	2.35	0.95																																																																																
20 30	10. 2 10.11	1.65		20 30	40.58	41.56	42.54	43.52	44.50	45.47	46.44	47.42	48.40	49.37	50.35	51.32	52.30	2.15	0.96																																																																																
30 40	9.29 9.38	1.45		30 40	41.40	42.38	43.36	44.34	45.32	46.30	47.28	48.26	49.23	50.21	51.19	52.17	53.15	1.85	0.97																																																																																
40 50	9. 0 9. 9	1.35		40 50	42.14	43.14	44.13	45.11	46. 9	47. 7	48. 5	49. 4	50. 3	51. 2	52. 1	53. 0	54. 0	1.65	0.97																																																																																
50 60	8.33 8.42	1.25		50 60	42.47	43.47	44.46	45.45	46.44	47.43	48.42	49.41	50.40	51.39	52.38	53.37	54.36	1.55	0.98																																																																																
6. 0	8. 8 8.17	1.20		6. 0	43.18	44.17	45.15	46.14	47.12	48.11	49. 9	50. 7	51. 5	52. 4	53. 3	54. 3	55. 2	1.35	0.98																																																																																
10 20	7.44 7.53	1.05		10 20	43.44	44.44	45.42	46.41	47.39	48.37	49.36	50.34	51.32	52.31	53.30	54.29	55.28	1.25	0.98																																																																																
20 30	7.23 7.32	0.95		20 30	44. 9	45. 9	46. 8	47. 6	48. 4	49. 3	50. 3	51. 2	52. 1	53. 1	54. 0	55. 0	56. 0	1.10	0.98																																																																																
30 40	7. 4 7.13	0.90		30 40	44.32	45.30	46.29	47.28	48.26	49.25	50.24	51.22	52.20	53.19	54.18	55.17	56.16	1.05	0.98																																																																																
40 50	6.46 6.55	0.80		40 50	44.54	45.50	46.49	47.49	48.46	49.46	50.45	51.43	52.42	53.41	54.40	55.39	56.38	0.95	0.99																																																																																
50 60	6.30 6.39	0.75		50 60	45.11	46. 9	47. 8	48. 6	49. 5	50. 5	51. 4	52. 4	53. 3	54. 3	55. 3	56. 3	57. 3	0.90	0.99																																																																																
7. 0	6.15 6.24	0.70		7. 0	45.28	46.27	47.26	48.24	49.23	50.22	51.21	52.20	53.19	54.18	55.17	56.16	57.15	0.70	0.99																																																																																
10 20	6. 1 6.10	0.65		10 20	45.42	46.40	47.39	48.38	49.37	50.35	51.35	52.34	53.33	54.32	55.31	56.30	57.29	0.65	0.99																																																																																
20 30	5.48 5.57	0.60		20 30	45.55	46.53	47.52	48.51	49.50	50.49	51.48	52.47	53.45	54.44	55.43	56.42	57.41	0.60	0.99																																																																																
30 40	5.36 5.45	0.55		30 40	46. 8	47. 7	48. 6	49. 5	50. 5	51. 4	52. 4	53. 3	54. 3	55. 3	56. 3	57. 3	58. 3	0.50	0.99																																																																																
40 50	5. 3 5.12	0.45		40 50	46.38	47.37	48.36	49.35	50.34	51.32	52.31	53.30	54.29	55.28	56.27	57.26	58.25	0.38	0.99																																																																																
50 60	4.36 4.45	0.40		50 60	47. 1	48. 0	48.59	49.58	50.57	51.55	52.54	53.53	54.51	55.50	56.49	57.48	58.47	0.27	0.99																																																																																
8. 0	4.12 4.21	0.32		8. 0	47.18	48.16	49.15	50.14	51.13	52.11	53.10	54. 9	55. 8	56. 7	57. 6	58. 5	59. 4	0.18	0.99																																																																																
10 20	3.53 3.62	0.30		10 20	47.29	48.28	49.26	50.25	51.23	52.22	53.21	54.20	55.19	56.18	57.17	58.16	59.15	0.11	0.99																																																																																
20 30	3.35 3.44	0.25		20 30	47.36	48.35	49.33	50.32	51.30	52.29	53.27	54.26	55.25	56.24	57.23	58.22	59.21	0.07	0.99																																																																																
30 40	3.20 3.29	0.22		30 40	47.42	48.40	49.38	50.36	51.34	52.33	53.31	54.29	55.27	56.26	57.25	58.24	59.23	0.00	0.99																																																																																
40 50	3. 7 3.16	0.20		40 50	47.42	48.40	49.38	50.36	51.34	52.33	53.30	54.28	55.26	56.25	57.24	58.23	59.22	0.07	0.99																																																																																
50 60	2.55 2.64	0.17		50 60	47.39	48.37	49.34	50.32	51.30	52.27	53.25	54.23	55.21	56.20	57.19	58.18	59.17	0.08	0.98																																																																																
9. 0	2.45 2.54	0.16		9. 0	47.36	48.33	49.31	50.28	51.26	52.23	53.20	54.18	55.15	56.14	57.13	58.12	59.11	0.13	0.98																																																																																
10 20	2.35 2.44	0.15		10 20	47.29	48.26	49.23	50.21	51.18	52.15	53.12	54. 9	55. 6	56. 4	57. 3	58. 2	59. 1	0.17	0.98																																																																																
20 30	2.27 2.35	0.13		20 30	47.21	48.18	49.14	50.11	51. 8	52. 5	53. 2	54. 0	55. 0	56. 0	57. 0	58. 0	59. 0	0.19	0.96																																																																																
30 40	2.19 2.27	0.11		30 40	47.11	48. 8	49. 4	50. 0	51. 5	52. 5	53. 5	54. 5	55. 5	56. 5	57. 5	58. 5	59. 5	0.21	0.96																																																																																
40 50	2.12 2.20	0.10		40 50	46.59	47.55	48.51	49.47	50.44	51.40	52.36	53.32	54.28	55.24	56.20	57.16	58.12	0.27	0.95																																																																																
50 60	2. 6 2.14	0.09		50 60	46.45	47.41	48.37	49.32	50.28	51.24	52.20	53.16	54.11	55.07	56.03	57.00	58.00	0.28	0.94																																																																																
6. 0	2. 0 2. 8	0.09		6. 0	46.30	47.26	48.21	49.16	50.11	51. 7	52. 3	53.18	54.13	55.08	56.04	57.00	58.00	0.29	0.94																																																																																
10 20	1.54 1.62	0.09		10 20	46.14	47. 9	48. 4	49.39	50.34	51.29	52.24	53.19	54.14	55.09	56.04	57.00	58.00	0.31	0.93																																																																																
20 30	1.48 1.56	0.08		20 30	45.56	46.51	47.45	48.40	49.35	50.29	51.24	52.18	53.13	54.08	55.03	56.00	57.00	0.35	0.93																																																																																
30 40	1.43 1.51	0.07		30 40	45.37	46.31	47.26	48.20	49.14	50. 8	51. 3	52.17	53.12	54.07	55.02	56.00	57.00	0.37	0.92																																																																																
40 50	1.39 1.47	0.07		40 50	45.17	46.11	47. 4	48.48	49.42	50.36	51.30	52.24	53.18	54.13	55.08	56.00	57.00	0.40	0.90																																																																																
50 60	1.34 1.42	0.07		50 60	44.55	45.49	46.42	47.35	48.28	49.22	50.15	51. 8	52. 2	53.16	54.11	55.06	56.00	0.41	0.90																																																																																
7. 0	1.30 1.38	0.06		7. 0	44.33	45.26	46.19	47.12	48. 4	49.07	50.00	51.00	52.00	53.00	54.00	55.00	56.00	0.43	0.90																																																																																
10 20	1.27 1.35	0.06		10 20	44. 9	45. 2	46.15	47.08	48.01	49.00	50.00	51.00	52.00	53.00	54.00	55.00	56.00	0.45	0.89																																																																																
20 30	1.23 1.31	0.05		20 30	43.44	44.36	45.28	46.19	47.11	48. 2	49.00	50.00	51.00	52.00	53.00	54.00	55.00	0.47	0.89																																																																																
30 40	1.20 1.28	0.05		30 40	43.18	44.10	45. 1	46.01	47.00	48.00	49.00	50.00	51.00	52.00	53.00	54.00	55.00	0.48	0.87																																																																																
40 50	1.17 1.24	0.05		40 50	42.51	43.42	44.33	45.23	46.14	47. 5	48.00	49.00	50.00	51.00	52.00	53.00	54.00	0.50	0.87																																																																																
50 60	1.14 1.21	0.05		50 60	42.24	43.14	44. 4	45.34	46.24	47.14	48.04	49.00	50.00	51.0.																																																																																					

TABLE XIX.

27

TO REDUCE THE TRUE ALTITUDES OF THE SUN, MOON, STARS, AND
PLANETS TO THEIR APPARENT ALTITUDES.

Reduction of the Moon's true Altitude.															
				Moon's Horizontal Parallax.											
True Alt. of the Sun, or Star.	Reduction of the Sun's true Altitude.	Reduction of a Star's true Altitude.	Difference to 1° of Alt. for Sun, or Star.	Moon's true Alt.	53'	54'	55'	56'	57'	58'	59'	60'	61'	Difference to 1° of Moon's true Altitude.	Differ. to 1° of Moon's Horizontal Parallax.
36	1.11	1.18	0.05	36	41.55	42.44	43.34	44.23	45.13	46.02	46.52	47.41	48.30	0.55	0.83
37	1.9	1.16	0.05	37	41.25	42.14	43.03	43.91	44.80	45.69	46.58	47.47	48.36	0.56	0.81
38	1.6	1.13	0.05	38	40.54	41.42	42.30	43.19	44.07	44.95	45.83	46.71	47.59	0.57	0.80
39	1.3	1.10	0.05	39	40.23	41.10	41.97	42.84	43.71	44.58	45.45	46.32	47.19	0.58	0.79
40	1.1	1.8	0.05	40	39.50	40.37	41.24	42.11	42.98	43.84	44.71	45.58	46.45	0.60	0.78
41	0.58	1.5	0.04	41	39.17	40.03	40.89	41.75	42.61	43.47	44.33	45.19	46.05	0.61	0.77
42	0.56	1.3	0.04	42	38.43	39.28	40.14	40.99	41.85	42.70	43.56	44.41	45.27	0.63	0.76
43	0.54	1.1	0.04	43	38.7	39.52	40.36	41.21	42.05	42.90	43.74	44.58	45.43	0.65	0.75
44	0.53	0.59	0.04	44	37.31	38.16	38.99	39.83	40.67	41.51	42.35	43.19	44.03	0.67	0.74
45	0.51	0.57	0.04	45	36.54	37.38	38.21	39.04	39.87	40.70	41.53	42.36	43.19	0.69	0.73
46	0.49	0.55	0.04	46	36.17	36.99	37.81	38.63	39.45	40.27	41.09	41.91	42.73	0.70	0.72
47	0.47	0.53	0.04	47	35.39	36.21	37.02	37.84	38.65	39.46	40.27	41.08	41.89	0.71	0.71
48	0.45	0.51	0.04	48	35.0	35.81	36.62	37.43	38.24	39.04	39.85	40.65	41.46	0.71	0.70
49	0.43	0.49	0.03	49	34.20	35.0	35.80	36.60	37.40	38.20	39.00	39.80	40.60	0.72	0.68
50	0.42	0.48	0.03	50	33.39	34.19	34.98	35.77	36.57	37.36	38.16	38.95	39.75	0.73	0.67
51	0.40	0.46	0.03	51	32.58	33.37	34.16	34.95	35.74	36.53	37.32	38.11	38.90	0.75	0.66
52	0.39	0.44	0.03	52	32.16	32.94	33.72	34.50	35.28	36.06	36.84	37.62	38.40	0.76	0.64
53	0.37	0.43	0.03	53	31.34	32.11	32.88	33.65	34.42	35.19	35.96	36.73	37.50	0.77	0.62
54	0.36	0.41	0.03	54	30.50	31.26	32.02	32.78	33.54	34.30	35.06	35.82	36.58	0.79	0.60
55	0.35	0.40	0.03	55	30.63	31.38	32.13	32.88	33.63	34.38	35.13	35.88	36.63	0.80	0.59
56	0.33	0.38	0.03	56	29.22	29.97	30.72	31.47	32.22	32.97	33.72	34.47	35.22	0.81	0.58
57	0.32	0.37	0.03	57	28.36	29.10	29.84	30.58	31.32	32.06	32.80	33.54	34.28	0.82	0.57
58	0.30	0.35	0.02	58	27.51	28.24	28.97	29.70	30.43	31.16	31.89	32.62	33.35	0.82	0.56
59	0.29	0.34	0.02	59	27.5	28.27	29.00	29.73	30.46	31.19	31.92	32.65	33.38	0.83	0.53
60	0.28	0.33	0.02	60	26.18	26.88	27.58	28.28	28.98	29.68	30.38	31.08	31.78	0.84	0.51
61	0.27	0.32	0.02	61	25.30	26.0	26.70	27.40	28.10	28.80	29.50	30.20	30.90	0.85	0.50
62	0.26	0.30	0.02	62	24.42	25.11	25.80	26.50	27.20	27.90	28.60	29.30	30.00	0.86	0.49
63	0.25	0.29	0.02	63	23.54	24.22	24.90	25.58	26.26	26.94	27.62	28.30	28.98	0.87	0.47
64	0.24	0.28	0.02	64	23.5	24.22	24.90	25.58	26.26	26.94	27.62	28.30	28.98	0.88	0.45
65	0.22	0.26	0.02	65	22.16	22.82	23.48	24.14	24.80	25.46	26.12	26.78	27.44	0.89	0.43
66	0.21	0.25	0.02	66	21.26	21.91	22.56	23.21	23.86	24.51	25.16	25.81	26.46	0.90	0.42
67	0.20	0.24	0.02	67	20.36	21.0	21.64	22.28	22.92	23.56	24.20	24.84	25.48	0.91	0.40
68	0.19	0.23	0.02	68	19.45	20.08	20.71	21.34	21.97	22.60	23.23	23.86	24.49	0.92	0.39
69	0.18	0.22	0.02	69	18.54	19.16	19.78	20.40	21.02	21.64	22.26	22.88	23.50	0.93	0.37
70	0.17	0.21	0.02	70	18.2	18.82	19.44	20.06	20.68	21.30	21.92	22.54	23.16	0.94	0.35
71	0.16	0.19	0.02	71	17.11	17.71	18.31	18.91	19.51	20.11	20.71	21.31	21.91	0.94	0.33
72	0.15	0.18	0.01	72	16.19	16.78	17.37	17.96	18.55	19.14	19.73	20.32	20.91	0.95	0.32
73	0.14	0.17	0.01	73	15.26	15.84	16.42	17.00	17.58	18.16	18.74	19.32	19.90	0.96	0.30
74	0.14	0.16	0.01	74	14.34	14.91	15.48	16.05	16.62	17.19	17.76	18.33	18.90	0.96	0.28
75	0.13	0.15	0.01	75	13.40	13.96	14.52	15.08	15.64	16.20	16.76	17.32	17.88	0.97	0.26
76	0.12	0.14	0.01	76	12.46	13.01	13.56	14.11	14.66	15.21	15.76	16.31	16.86	0.97	0.25
77	0.11	0.13	0.01	77	11.53	12.07	12.61	13.15	13.69	14.23	14.77	15.31	15.85	0.97	0.23
78	0.10	0.12	0.01	78	10.59	11.12	11.65	12.18	12.71	13.24	13.77	14.30	14.83	0.97	0.22
79	0.9	0.11	0.01	79	10.5	11.06	11.61	12.16	12.71	13.26	13.81	14.36	14.91	0.98	0.20
80	0.8	0.10	0.01	80	9.10	9.21	9.32	9.42	9.53	10.0	10.07	10.14	10.21	0.98	0.19
81	0.8	0.9	0.01	81	8.16	8.26	8.35	8.45	8.55	9.0	9.07	9.14	9.21	0.98	0.17
82	0.7	0.8	0.01	82	7.21	7.30	7.38	7.47	7.56	8.0	8.07	8.14	8.21	0.98	0.15
83	0.6	0.7	0.01	83	6.26	6.34	6.41	6.49	6.57	7.0	7.07	7.14	7.21	0.99	0.13
84	0.5	0.6	0.01	84	5.31	5.38	5.44	5.51	5.57	6.0	6.07	6.14	6.21	0.99	0.12
85	0.4	0.5	0.01	85	4.36	4.41	4.47	4.53	4.58	5.0	5.07	5.14	5.20	0.99	0.10
86	0.3	0.4	0.01	86	3.41	3.45	3.50	3.54	3.59	4.0	4.07	4.11	4.15	1.00	0.08
87	0.3	0.3	0.01	87	2.46	2.50	2.53	2.56	2.59	3.0	3.07	3.10	3.12	1.00	0.06
88	0.2	0.2	0.01	88	1.51	1.53	1.55	1.57	1.59	2.0	2.07	2.10	2.12	1.00	0.03
89	0.1	0.1	0.01	89	0.56	0.57	0.58	0.59	1.0	1.07	1.10	1.12	1.14	1.00	0.01
90	0.0	0.0	0.00	90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
Moon's Horizontal Parallax.															
Reduction of the Moon's true Altitude.															
True Alt. of the Sun, or Star.	Reduction of the Sun's true Altitude.	Reduction of a Star's true Altitude.	Difference to 1° of Alt. for Sun, or Star.	Moon's true Alt.	53'	54'	55'	56'	57'	58'	59'	60'	61'	Difference to 1° of Moon's true Altitude.	Differ. to 1° of Moon's Horizontal Parallax.

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax.											Proportional parts to										Minutes of Altitude
												Seconds of Parallax.										
	53'	54'	55'	56'	57'	58'	59'	60'	61'	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"			
0	59.59.29	59.59.32	59.59.35	59.59.38	59.59.41	59.59.44	59.59.47	59.59.50	59.59.53	59.59.56	0	0	0	0	0	0	0	0	0	Add.		
10	59.59.32	59.59.35	59.59.38	59.59.41	59.59.44	59.59.47	59.59.50	59.59.53	59.59.56	59.59.59	10	0	0	0	0	0	0	0	0	1' = 0"		
20	59.59.34	59.59.37	59.59.40	59.59.43	59.59.46	59.59.49	59.59.52	59.59.55	59.59.58	59.59.61	20	0	0	0	0	0	0	0	0	2. 1		
30	59.59.37	59.59.40	59.59.43	59.59.46	59.59.49	59.59.52	59.59.55	59.59.58	59.59.61	59.59.64	30	0	1	1	1	1	1	1	1	3. 1		
40	59.59.41	59.59.44	59.59.47	59.59.50	59.59.53	59.59.56	59.59.59	59.59.62	59.59.65	59.59.68	40	1	1	1	1	1	1	1	1	4. 2		
50	59.59.45	59.59.48	59.59.51	59.59.54	59.59.57	59.59.60	59.59.63	59.59.66	59.59.69	59.59.72	50	1	1	1	1	1	1	1	1	5. 2		
1	59.59.48	59.59.51	59.59.54	59.59.57	59.59.60	59.59.63	59.59.66	59.59.69	59.59.72	59.59.75	0	0	0	0	0	0	0	0	0	6. 2		
10	59.59.53	59.59.56	59.59.59	59.59.62	59.59.65	59.59.68	59.59.71	59.59.74	59.59.77	59.59.80	10	0	0	0	0	0	0	0	0	7. 3		
20	59.59.57	59.59.60	59.59.63	59.59.66	59.59.69	59.59.72	59.59.75	59.59.78	59.59.81	59.59.84	20	1	1	1	1	1	1	1	1	8. 3		
30	60. 0. 1	60. 0. 2	60. 0. 3	60. 0. 4	60. 0. 5	60. 0. 6	60. 0. 7	60. 0. 8	60. 0. 9	60. 0. 10	30	1	1	1	1	1	1	1	1	9. 4		
40	60. 0. 5	60. 0. 6	60. 0. 7	60. 0. 8	60. 0. 9	60. 0. 10	60. 0. 11	60. 0. 12	60. 0. 13	60. 0. 14	40	1	1	1	1	1	1	1	1			
50	60. 0. 10	60. 0. 11	60. 0. 12	60. 0. 13	60. 0. 14	60. 0. 15	60. 0. 16	60. 0. 17	60. 0. 18	60. 0. 19	50	2	2	2	2	2	2	2	2			
2	60. 0. 15	60. 0. 16	60. 0. 17	60. 0. 18	60. 0. 19	60. 0. 20	60. 0. 21	60. 0. 22	60. 0. 23	60. 0. 24	0	0	0	0	0	0	0	0	0	Add.		
10	60. 0. 20	60. 0. 21	60. 0. 22	60. 0. 23	60. 0. 24	60. 0. 25	60. 0. 26	60. 0. 27	60. 0. 28	60. 0. 29	10	0	0	0	0	0	0	0	0	1' = 1"		
20	60. 0. 24	60. 0. 25	60. 0. 26	60. 0. 27	60. 0. 28	60. 0. 29	60. 0. 30	60. 0. 31	60. 0. 32	60. 0. 33	20	1	1	1	1	1	1	1	1	2. 1		
30	60. 0. 29	60. 0. 30	60. 0. 31	60. 0. 32	60. 0. 33	60. 0. 34	60. 0. 35	60. 0. 36	60. 0. 37	60. 0. 38	30	1	1	1	1	1	1	1	1	3. 2		
40	60. 0. 34	60. 0. 35	60. 0. 36	60. 0. 37	60. 0. 38	60. 0. 39	60. 0. 40	60. 0. 41	60. 0. 42	60. 0. 43	40	1	1	1	1	1	1	1	1	4. 2		
50	60. 0. 39	60. 0. 40	60. 0. 41	60. 0. 42	60. 0. 43	60. 0. 44	60. 0. 45	60. 0. 46	60. 0. 47	60. 0. 48	50	2	2	2	2	2	2	2	2			
3	60. 0. 44	60. 0. 45	60. 0. 46	60. 0. 47	60. 0. 48	60. 0. 49	60. 0. 50	60. 0. 51	60. 0. 52	60. 0. 53	0	0	0	0	0	0	0	0	0	Add.		
10	60. 0. 49	60. 0. 50	60. 0. 51	60. 0. 52	60. 0. 53	60. 0. 54	60. 0. 55	60. 0. 56	60. 0. 57	60. 0. 58	10	0	0	0	0	0	0	0	0	1' = 1"		
20	60. 0. 54	60. 0. 55	60. 0. 56	60. 0. 57	60. 0. 58	60. 0. 59	60. 0. 60	60. 0. 61	60. 0. 62	60. 0. 63	20	1	1	1	1	1	1	1	1	2. 1		
30	60. 0. 59	60. 0. 60	60. 0. 61	60. 0. 62	60. 0. 63	60. 0. 64	60. 0. 65	60. 0. 66	60. 0. 67	60. 0. 68	30	1	1	1	1	1	1	1	1	3. 2		
40	60. 1. 5	60. 1. 6	60. 1. 7	60. 1. 8	60. 1. 9	60. 1. 10	60. 1. 11	60. 1. 12	60. 1. 13	60. 1. 14	40	2	2	2	2	2	2	2	2	4. 2		
50	60. 1. 10	60. 1. 11	60. 1. 12	60. 1. 13	60. 1. 14	60. 1. 15	60. 1. 16	60. 1. 17	60. 1. 18	60. 1. 19	50	2	2	2	2	2	2	2	2			
4	60. 1. 15	60. 1. 16	60. 1. 17	60. 1. 18	60. 1. 19	60. 1. 20	60. 1. 21	60. 1. 22	60. 1. 23	60. 1. 24	0	0	0	0	0	0	0	0	0	Add.		
10	60. 1. 20	60. 1. 21	60. 1. 22	60. 1. 23	60. 1. 24	60. 1. 25	60. 1. 26	60. 1. 27	60. 1. 28	60. 1. 29	10	0	0	0	0	0	0	0	0	1' = 1"		
20	60. 1. 26	60. 1. 27	60. 1. 28	60. 1. 29	60. 1. 30	60. 1. 31	60. 1. 32	60. 1. 33	60. 1. 34	60. 1. 35	20	1	1	1	1	1	1	1	1	2. 1		
30	60. 1. 31	60. 1. 32	60. 1. 33	60. 1. 34	60. 1. 35	60. 1. 36	60. 1. 37	60. 1. 38	60. 1. 39	60. 1. 40	30	1	2	2	2	2	2	2	2	3. 2		
40	60. 1. 36	60. 1. 37	60. 1. 38	60. 1. 39	60. 1. 40	60. 1. 41	60. 1. 42	60. 1. 43	60. 1. 44	60. 1. 45	40	2	2	2	2	2	2	2	2	4. 2		
50	60. 1. 41	60. 1. 42	60. 1. 43	60. 1. 44	60. 1. 45	60. 1. 46	60. 1. 47	60. 1. 48	60. 1. 49	60. 1. 50	50	2	3	3	3	3	3	3	3			
5	60. 1. 46	60. 1. 47	60. 1. 48	60. 1. 49	60. 1. 50	60. 1. 51	60. 1. 52	60. 1. 53	60. 1. 54	60. 1. 55	0	0	0	0	0	0	0	0	0	Add.		
10	60. 1. 52	60. 1. 53	60. 1. 54	60. 1. 55	60. 1. 56	60. 1. 57	60. 1. 58	60. 1. 59	60. 2. 0	60. 2. 1	10	0	0	0	0	0	0	0	0	1' = 1"		
20	60. 1. 57	60. 1. 58	60. 1. 59	60. 2. 0	60. 2. 1	60. 2. 2	60. 2. 3	60. 2. 4	60. 2. 5	60. 2. 6	20	1	1	1	1	1	1	1	1	2. 1		
30	60. 2. 2	60. 2. 3	60. 2. 4	60. 2. 5	60. 2. 6	60. 2. 7	60. 2. 8	60. 2. 9	60. 2. 10	60. 2. 11	30	2	2	2	2	2	2	2	2	3. 2		
40	60. 2. 7	60. 2. 8	60. 2. 9	60. 2. 10	60. 2. 11	60. 2. 12	60. 2. 13	60. 2. 14	60. 2. 15	60. 2. 16	40	3	3	3	3	3	3	3	3	4. 2		
50	60. 2. 13	60. 2. 14	60. 2. 15	60. 2. 16	60. 2. 17	60. 2. 18	60. 2. 19	60. 2. 20	60. 2. 21	60. 2. 22	50	3	3	3	3	3	3	3	3			
6	60. 2. 18	60. 2. 19	60. 2. 20	60. 2. 21	60. 2. 22	60. 2. 23	60. 2. 24	60. 2. 25	60. 2. 26	60. 2. 27	0	0	0	0	0	0	0	0	0	Add.		
10	60. 2. 24	60. 2. 25	60. 2. 26	60. 2. 27	60. 2. 28	60. 2. 29	60. 2. 30	60. 2. 31	60. 2. 32	60. 2. 33	10	1	1	1	1	1	1	1	1	1' = 1"		
20	60. 2. 29	60. 2. 30	60. 2. 31	60. 2. 32	60. 2. 33	60. 2. 34	60. 2. 35	60. 2. 36	60. 2. 37	60. 2. 38	20	1	1	2	2	2	2	2	2	2. 1		
30	60. 2. 34	60. 2. 35	60. 2. 36	60. 2. 37	60. 2. 38	60. 2. 39	60. 2. 40	60. 2. 41	60. 2. 42	60. 2. 43	30	2	2	2	2	3	3	3	3	3. 2		
40	60. 2. 39	60. 2. 40	60. 2. 41	60. 2. 42	60. 2. 43	60. 2. 44	60. 2. 45	60. 2. 46	60. 2. 47	60. 2. 48	40	3	3	3	3	3	3	4	4	4. 2		
50	60. 2. 45	60. 2. 46	60. 2. 47	60. 2. 48	60. 2. 49	60. 2. 50	60. 2. 51	60. 2. 52	60. 2. 53	60. 2. 54	50	4	4	4	4	4	4	4	4			
7	60. 2. 50	60. 2. 51	60. 2. 52	60. 2. 53	60. 2. 54	60. 2. 55	60. 2. 56	60. 2. 57	60. 2. 58	60. 2. 59	0	0	0	0	0	0	0	0	0	Add.		
10	60. 2. 55	60. 2. 56	60. 2. 57	60. 2. 58	60. 2. 59	60. 3. 0	60. 3. 1	60. 3. 2	60. 3. 3	60. 3. 4	10	0	0	0	0	0	0	0	0	1' = 1"		
20	60. 3. 1	60. 3. 2	60. 3. 3	60. 3. 4	60. 3. 5	60. 3. 6	60. 3. 7	60. 3. 8	60. 3. 9	60. 3. 10	20	2	2	2	2	2	2	2	2	2. 1		
30	60. 3. 6	60. 3. 7	60. 3. 8	60. 3. 9	60. 3. 10	60. 3. 11	60. 3. 12	60. 3. 13	60. 3. 14	60. 3. 15	30	2	3	3	3	3	3	3	3	3. 2		
40	60. 3. 11	60. 3. 12	60. 3. 13	60. 3. 14	60. 3. 15	60. 3. 16	60. 3. 17	60. 3. 18	60. 3. 19	60. 3. 20	40	3	3	3	4	4	4	4	4	4. 2		
50	60. 3. 16	60. 3. 17	60. 3. 18	60. 3. 19	60. 3. 20	60. 3. 21	60. 3. 22	60. 3. 23	60. 3. 24	60. 3. 25	50	4	4	4	4	5	5	5	5			
8	60. 3. 22	60. 3. 23	60. 3. 24	60. 3. 25	60. 3. 26	60. 3. 27	60. 3. 28	60. 3. 29	60. 3. 30	60. 3. 31	0	0	0	0	0	0	0	0	0	Add.		
10	60. 3. 27	60. 3. 28	60. 3. 29	60. 3. 30	60. 3. 31	60. 3. 32	60. 3. 33	60. 3. 34	60. 3. 35	60. 3. 36	10	1	1	1	1	1	1	1	1	1' = 1"		
20	60. 3. 32	60. 3. 33	60. 3. 34	60. 3. 35	60. 3. 36	60. 3. 37	60. 3. 38	60. 3. 39	60. 3. 40	60. 3. 41	20	2	2	2	2	2	2	2	2	2. 1		
30	60. 3. 37	60. 3. 38	60. 3. 39	60. 3. 40	60. 3. 41	60. 3. 42	60. 3. 43	60. 3. 44	60. 3. 45	60. 3. 46	30	3	3	3	3	3	3	3	3	3. 2		
40	60. 3. 43	60. 3. 44	60. 3. 45	60. 3. 46	60. 3. 47	60. 3. 48	60. 3. 49	60. 3. 50	60. 3. 51													

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to Seconds of Parallax.										Minutes of Altitude
	53'	54'	55'	56'	57'	58'	59'	60'	61'	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
	0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50	60		
10	0	60. 4. 25	4. 31	4. 38	4. 44	4. 51	4. 57	5. 4	5. 10	5. 17	0	0	0	0	0	0	1	1	1	Add. 1' = 1"	
10	10	60. 4. 30	4. 37	4. 44	4. 50	4. 57	5. 3	5. 10	5. 16	5. 23	10	1	1	1	1	2	2	2	2		
10	20	60. 4. 35	4. 42	4. 49	4. 55	5. 2	5. 9	5. 16	5. 22	5. 29	20	2	2	2	3	3	3	3	3		
10	30	60. 4. 41	4. 47	4. 54	5. 1	5. 8	5. 15	5. 22	5. 28	5. 35	30	3	3	4	4	4	4	4	4		
10	40	60. 4. 46	4. 53	5. 0	5. 7	5. 14	5. 20	5. 27	5. 34	5. 41	40	4	5	5	5	5	5	5	5		
10	50	60. 4. 51	4. 58	5. 5	5. 12	5. 19	5. 26	5. 33	5. 40	5. 47	50	5	6	6	6	6	6	6	6	7	
11	0	60. 4. 56	5. 3	5. 11	5. 18	5. 25	5. 32	5. 39	5. 46	5. 53	0	0	0	0	0	1	1	1	1	Add. 1' = 1"	
11	10	60. 5. 2	5. 9	5. 16	5. 24	5. 31	5. 38	5. 45	5. 52	5. 59	10	1	1	1	2	2	2	2	2		
11	20	60. 5. 7	5. 14	5. 22	5. 29	5. 36	5. 43	5. 51	5. 58	6. 5	20	2	3	3	3	3	3	3	3		
11	30	60. 5. 12	5. 19	5. 27	5. 35	5. 42	5. 49	5. 57	6. 4	6. 11	30	3	4	4	4	4	4	4	4		
11	40	60. 5. 17	5. 24	5. 32	5. 40	5. 47	5. 55	6. 2	6. 10	6. 17	40	4	5	5	5	5	5	5	5		
11	50	60. 5. 23	5. 30	5. 38	5. 46	5. 53	6. 0	6. 8	6. 16	6. 23	50	5	6	6	6	6	6	6	6	7	
12	0	60. 5. 28	5. 35	5. 43	5. 51	5. 58	6. 6	6. 14	6. 22	6. 29	0	0	0	0	1	1	1	1	1	Add. 1' = 1"	
12	10	60. 5. 33	5. 40	5. 48	5. 56	6. 4	6. 12	6. 20	6. 28	6. 35	10	1	1	2	2	2	2	2	2		
12	20	60. 5. 38	5. 46	5. 54	6. 2	6. 10	6. 18	6. 26	6. 34	6. 41	20	2	3	3	3	3	3	3	3		
12	30	60. 5. 43	5. 51	5. 59	6. 7	6. 15	6. 23	6. 31	6. 39	6. 47	30	3	4	4	4	4	4	4	4		
12	40	60. 5. 49	5. 57	6. 5	6. 13	6. 21	6. 29	6. 37	6. 45	6. 53	40	4	5	5	5	5	5	5	5		
12	50	60. 5. 54	6. 2	6. 10	6. 18	6. 27	6. 35	6. 43	6. 51	6. 59	50	5	6	6	6	6	6	6	6	7	
13	0	60. 5. 59	6. 7	6. 15	6. 24	6. 32	6. 40	6. 49	6. 57	7. 5	0	0	0	0	1	1	1	1	1	Add. 1' = 1"	
13	10	60. 6. 4	6. 12	6. 21	6. 30	6. 38	6. 46	6. 55	7. 3	7. 11	10	1	2	2	2	2	2	2	2		
13	20	60. 6. 9	6. 18	6. 26	6. 35	6. 43	6. 51	7. 0	7. 9	7. 17	20	2	3	3	3	3	3	3	3		
13	30	60. 6. 15	6. 23	6. 32	6. 41	6. 49	6. 57	7. 6	7. 15	7. 23	30	3	4	4	4	4	4	4	4		
13	40	60. 6. 20	6. 28	6. 37	6. 46	6. 55	7. 3	7. 12	7. 20	7. 29	40	4	5	5	5	5	5	5	5		
13	50	60. 6. 25	6. 34	6. 43	6. 52	7. 0	7. 8	7. 17	7. 26	7. 35	50	5	6	6	6	6	6	6	6	7	
14	0	60. 6. 30	6. 39	6. 48	6. 57	7. 6	7. 14	7. 23	7. 32	7. 41	0	0	0	0	1	1	1	1	1	Add. 1' = 1"	
14	10	60. 6. 35	6. 44	6. 53	7. 2	7. 11	7. 20	7. 29	7. 38	7. 47	10	1	2	2	2	2	2	2	2		
14	20	60. 6. 41	6. 50	6. 59	7. 8	7. 17	7. 26	7. 35	7. 44	7. 53	20	2	3	3	3	3	3	3	3		
14	30	60. 6. 46	6. 55	7. 4	7. 13	7. 22	7. 31	7. 41	7. 50	7. 59	30	3	4	4	4	4	4	4	4		
14	40	60. 6. 51	7. 0	7. 9	7. 18	7. 28	7. 37	7. 46	7. 55	8. 5	40	4	5	5	5	5	5	5	5		
14	50	60. 6. 56	7. 6	7. 15	7. 24	7. 33	7. 42	7. 52	8. 1	8. 11	50	5	6	6	6	6	6	6	6	7	
15	0	60. 7. 1	7. 11	7. 20	7. 29	7. 39	7. 48	7. 58	8. 7	8. 17	0	0	0	0	1	1	1	1	1	Add. 1' = 1"	
15	10	60. 7. 6	7. 16	7. 25	7. 35	7. 45	7. 54	8. 4	8. 13	8. 23	10	1	2	2	2	2	2	2	2		
15	20	60. 7. 11	7. 21	7. 31	7. 40	7. 50	7. 59	8. 9	8. 19	8. 29	20	2	3	3	3	3	3	3	3		
15	30	60. 7. 17	7. 27	7. 36	7. 46	7. 56	8. 5	8. 15	8. 25	8. 35	30	3	4	4	4	4	4	4	4		
15	40	60. 7. 22	7. 32	7. 41	7. 51	8. 1	8. 11	8. 21	8. 30	8. 40	40	4	5	5	5	5	5	5	5		
15	50	60. 7. 27	7. 37	7. 47	7. 57	8. 7	8. 16	8. 26	8. 36	8. 46	50	5	6	6	6	6	6	6	6	7	
16	0	60. 7. 32	7. 42	7. 52	8. 2	8. 12	8. 22	8. 32	8. 42	8. 52	0	0	0	0	1	1	1	1	1	Add. 1' = 1"	
16	10	60. 7. 37	7. 47	7. 57	8. 7	8. 18	8. 28	8. 38	8. 48	8. 58	10	1	2	2	2	2	2	2	2		
16	20	60. 7. 42	7. 52	8. 3	8. 13	8. 23	8. 33	8. 43	8. 54	9. 4	20	2	3	3	3	3	3	3	3		
16	30	60. 7. 47	7. 58	8. 8	8. 18	8. 29	8. 39	8. 49	9. 0	9. 10	30	3	4	4	4	4	4	4	4		
16	40	60. 7. 52	8. 3	8. 13	8. 23	8. 34	8. 45	8. 55	9. 5	9. 15	40	4	5	5	5	5	5	5	5		
16	50	60. 7. 57	8. 8	8. 19	8. 29	8. 40	8. 50	9. 0	9. 11	9. 21	50	5	6	6	6	6	6	6	6	7	
17	0	60. 8. 2	8. 13	8. 24	8. 34	8. 45	8. 56	9. 6	9. 17	9. 27	0	0	0	0	1	1	1	1	1	Add. 1' = 1"	
17	10	60. 8. 8	8. 18	8. 29	8. 40	8. 51	9. 2	9. 12	9. 23	9. 33	10	1	2	2	2	2	2	2	2		
17	20	60. 8. 13	8. 23	8. 34	8. 45	8. 56	9. 7	9. 17	9. 28	9. 39	20	2	3	3	3	3	3	3	3		
17	30	60. 8. 18	8. 29	8. 39	8. 50	9. 1	9. 12	9. 23	9. 34	9. 45	30	3	4	4	4	4	4	4	4		
17	40	60. 8. 23	8. 34	8. 45	8. 56	9. 7	9. 18	9. 29	9. 40	9. 51	40	4	5	5	5	5	5	5	5		
17	50	60. 8. 28	8. 39	8. 50	9. 1	9. 12	9. 23	9. 35	9. 46	9. 57	50	5	6	6	6	6	6	6	6	7	
18	0	60. 8. 33	8. 44	8. 55	9. 6	9. 18	9. 29	9. 40	9. 51	10. 2	0	0	0	0	1	1	1	1	1	Add. 1' = 1"	
18	10	60. 8. 38	8. 49	9. 0	9. 11	9. 23	9. 35	9. 46	9. 57	10. 8	10	1	2	2	2	2	2	2	2		
18	20	60. 8. 43	8. 54	9. 6	9. 17	9. 29	9. 40	9. 51	10. 2	10. 14	20	2	3	3	3	3	3	3	3		
18	30	60. 8. 48	9. 0	9. 11	9. 22	9. 34	9. 46	9. 57	10. 8	10. 20	30	3	4	4	4	4	4	4	4		
18	40	60. 8. 53	9. 5	9. 16	9. 27	9. 39	9. 51	10. 3	10. 14	10. 25	40	4	5	5	5	5	5	5	5		
18	50	60. 8. 58	9. 10	9. 22	9. 33	9. 45	9. 57	10. 8	10. 19	10. 31	50	5	6	6	6	6	6	6	6	7	
19	0	60. 9. 3	9. 15	9. 27	9. 38	9. 50	10. 2	10. 14	10. 25	10. 37	0	0	0	0	1	1	1	1	1	Add. 1' = 1"	
19	10	60. 9. 8	9. 20	9. 32	9. 44	9. 56	10. 8	10. 20	10. 31	10. 43	10	1	2	2	2	2	2	2	2		
19	20	60. 9. 13	9. 25	9. 37	9. 49	10. 1	10. 13	10. 25	10. 37	10. 49	20	2	3	3	3	3	3	3	3		
19	30	60. 9. 18	9. 30	9. 42	9. 54	10. 6	10. 19	10. 31	10. 43	10. 55	30	3	4	4	4	4	4	4	4		
19	40	60. 9. 23	9. 36	9. 48	10. 0	10. 12	10. 24	10. 36	10. 48	11. 0	40	4	5	5	5	5	5	5	5		
19	50	60. 9. 28	9. 41	9. 53	10. 5	10. 17	10. 30	10. 42	10. 54	11. 6	50	5	6	6	6	6	6	6	6	7	
Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional Parts to Seconds of Parallax.										Minutes of Altitude
53'	54'	55'	56'	57'	58'	59'	60'	61'	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"			

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional Parts to Seconds of Parallax.										Minutes of Altitude
	53'	54'	55'	56'	57'	58'	59'	60'	61'		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	
	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	
20	0	60	9.33	9.46	9.58	10.10	10.22	10.35	10.47	10.59	11.12	0	0	0	1	1	1	1	2	2	Add.
10	60	9.38	9.51	10.3	10.16	10.28	10.40	10.53	11.5	11.18	10	2	2	3	3	3	3	4	4	4	1' = 1"
20	60	9.43	9.56	10.8	10.21	10.33	10.46	10.58	11.11	11.23	20	4	4	5	5	5	5	6	6	6	2. 1
30	60	9.48	10.1	10.14	10.26	10.39	10.51	11.4	11.16	11.29	30	6	7	7	7	7	7	8	8	8	3. 2
40	60	9.53	10.6	10.19	10.31	10.44	10.57	11.10	11.22	11.35	40	8	9	9	9	9	9	10	10	10	4. 2
50	60	9.58	10.11	10.24	10.37	10.49	11.2	11.15	11.28	11.41	50	10	11	11	11	11	12	12	12	12	5. 3
21	0	60	10.3	10.16	10.29	10.42	10.55	11.8	11.20	11.33	11.46	0	0	0	1	1	1	1	2	2	Add.
10	60	10.8	10.21	10.34	10.47	11.0	11.13	11.26	11.39	11.52	10	2	2	3	3	3	3	4	4	4	1' = 1"
20	60	10.13	10.26	10.39	10.52	11.5	11.19	11.32	11.45	11.58	20	4	5	5	5	5	6	6	6	6	2. 1
30	60	10.18	10.31	10.45	10.58	11.11	11.24	11.37	11.50	12.3	30	7	7	7	7	7	8	8	8	8	3. 2
40	60	10.23	10.36	10.50	11.3	11.16	11.29	11.42	11.56	12.9	40	9	9	9	9	9	10	10	10	10	4. 2
50	60	10.28	10.41	10.55	11.8	11.21	11.35	11.48	12.1	12.15	50	11	11	11	11	12	12	12	13	13	5. 3
22	0	60	10.33	10.46	11.0	11.13	11.26	11.40	11.53	12.7	12.20	0	0	0	1	1	1	1	2	2	Add.
10	60	10.38	10.51	11.5	11.18	11.32	11.45	11.59	12.12	12.26	10	2	2	3	3	3	3	4	4	4	1' = 1"
20	60	10.43	10.56	11.10	11.23	11.37	11.51	12.5	12.18	12.32	20	5	5	5	5	5	6	6	6	6	2. 1
30	60	10.48	11.1	11.15	11.29	11.42	11.56	12.10	12.24	12.37	30	7	7	7	7	7	8	8	8	8	3. 2
40	60	10.53	11.6	11.20	11.34	11.48	12.2	12.15	12.29	12.43	40	9	9	9	9	9	10	10	10	10	4. 2
50	60	10.57	11.11	11.25	11.39	11.53	12.7	12.21	12.35	12.49	50	11	11	11	11	12	12	12	13	13	5. 3
23	0	60	11.2	11.16	11.30	11.44	11.58	12.12	12.26	12.40	12.54	0	0	0	1	1	1	1	2	2	Add.
10	60	11.7	11.21	11.35	11.49	12.3	12.18	12.32	12.46	13.0	10	2	3	3	3	3	4	4	4	4	1' = 1"
20	60	11.12	11.26	11.40	11.54	12.9	12.23	12.37	12.51	13.5	20	5	5	5	5	5	6	6	6	6	2. 1
30	60	11.17	11.31	11.45	12.0	12.14	12.28	12.43	12.57	13.11	30	7	7	7	7	7	8	8	8	8	3. 2
40	60	11.22	11.36	11.50	12.5	12.19	12.34	12.48	13.2	13.17	40	9	9	9	9	9	10	10	10	10	4. 2
50	60	11.27	11.41	11.55	12.10	12.24	12.39	12.53	13.8	13.22	50	12	12	12	12	12	13	13	13	14	5. 3
24	0	60	11.32	11.46	12.0	12.15	12.30	12.44	12.59	13.13	13.27	0	0	0	1	1	1	1	2	2	Add.
10	60	11.36	11.51	12.6	12.20	12.35	12.49	13.4	13.19	13.33	10	2	3	3	3	3	4	4	4	4	1' = 1"
20	60	11.41	11.56	12.11	12.25	12.40	12.55	13.10	13.24	13.39	20	5	5	5	5	5	6	6	6	6	2. 1
30	60	11.46	12.1	12.16	12.30	12.45	13.0	13.15	13.30	13.44	30	7	8	8	8	8	9	9	9	9	3. 2
40	60	11.51	12.6	12.21	12.36	12.50	13.5	13.20	13.35	13.50	40	10	10	10	10	10	11	11	11	11	4. 2
50	60	11.56	12.11	12.26	12.41	12.56	13.11	13.26	13.42	13.55	50	12	13	13	13	13	14	14	14	14	5. 3
25	0	60	12.0	12.15	12.31	12.46	13.1	13.16	13.31	13.46	14.1	0	0	0	1	1	1	1	2	2	Add.
10	60	12.5	12.20	12.36	12.51	13.6	13.21	13.36	13.51	14.7	10	2	3	3	3	3	4	4	4	4	1' = 1"
20	60	12.10	12.25	12.41	12.56	13.11	13.26	13.42	13.57	14.12	20	5	5	5	5	5	6	6	6	6	2. 1
30	60	12.15	12.30	12.46	13.1	13.16	13.32	13.47	14.2	14.17	30	8	8	8	8	8	9	9	9	9	3. 2
40	60	12.20	12.35	12.50	13.6	13.21	13.37	13.52	14.8	14.23	40	10	10	10	10	10	11	11	11	11	4. 2
50	60	12.24	12.40	12.55	13.11	13.27	13.42	13.58	14.13	14.29	50	13	13	13	13	13	14	14	14	15	5. 3
26	0	60	12.29	12.45	13.0	13.16	13.32	13.47	14.3	14.18	14.34	0	0	0	1	1	1	1	2	2	Add.
10	60	12.34	12.50	13.5	13.21	13.37	13.52	14.8	14.24	14.39	10	3	3	3	3	3	4	4	4	4	1' = 1"
20	60	12.39	12.55	13.10	13.26	13.42	13.58	14.13	14.29	14.45	20	5	6	6	6	6	7	7	7	7	2. 1
30	60	12.43	12.59	13.15	13.31	13.47	14.3	14.19	14.35	14.50	30	8	8	8	8	8	9	9	9	9	3. 2
40	60	12.48	13.4	13.20	13.36	13.52	14.8	14.24	14.40	14.56	40	11	11	11	11	11	12	12	12	12	4. 2
50	60	12.53	13.9	13.25	13.41	13.57	14.13	14.29	14.45	15.1	50	13	13	13	13	13	14	14	14	15	5. 3
27	0	60	12.58	13.14	13.30	13.46	14.2	14.18	14.35	14.51	15.7	0	0	0	1	1	1	1	2	2	Add.
10	60	13.2	13.19	13.35	13.51	14.7	14.23	14.40	14.56	15.12	10	3	3	3	3	3	4	4	4	4	1' = 1"
20	60	13.7	13.23	13.40	13.56	14.12	14.29	14.45	15.1	15.17	20	5	6	6	6	6	7	7	7	7	2. 1
30	60	13.12	13.28	13.45	14.1	14.17	14.34	14.50	15.7	15.23	30	8	8	8	8	8	9	9	9	9	3. 2
40	60	13.17	13.33	13.49	14.6	14.22	14.39	14.55	15.12	15.28	40	11	11	11	11	11	12	12	12	12	4. 2
50	60	13.21	13.38	13.54	14.11	14.27	14.44	15.1	15.17	15.34	50	14	14	14	14	14	15	15	15	16	5. 3
28	0	60	13.26	13.42	13.59	14.16	14.32	14.49	15.6	15.22	15.39	0	0	0	1	1	1	1	2	2	Add.
10	60	13.30	13.47	14.4	14.21	14.37	14.54	15.11	15.28	15.45	10	3	3	3	3	3	4	4	4	4	1' = 1"
20	60	13.35	13.52	14.9	14.26	14.42	14.59	15.16	15.33	15.50	20	6	6	6	6	6	7	7	7	7	2. 1
30	60	13.40	13.57	14.14	14.31	14.47	15.4	15.21	15.38	15.55	30	8	9	9	9	9	10	10	10	10	3. 2
40	60	13.45	14.1	14.18	14.36	14.52	15.9	15.26	15.43	16.1	40	11	11	11	11	11	12	12	12	12	4. 2
50	60	13.49	14.6	14.23	14.41	14.57	15.15	15.32	15.49	16.6	50	14	14	14	14	14	15	15	15	16	5. 3
29	0	60	13.54	14.11	14.28	14.45	15.2	15.20	15.37	15.54	16.11	0	0	0	1	1	1	1	2	2	Add.
10	60	13.58	14.16	14.33	14.50	15.7	15.25	15.42	15.59	16.17	10	3	3	3	3	3	4	4	4	4	1' = 1"
20	60	14.3	14.20	14.38	14.55	15.12	15.30	15.47	16.4	16.22	20	6	6	6	6	6	7	7	7	7	2. 1
30	60	14.8	14.25	14.42	15.0	15.17	15.35	15.52	16.10	16.27	30	9	9	9	9	9	10	10	10	10	3. 2
40	60	14.12	14.30	14.47	15.5	15.22	15.40	15.57	16.15	16.32	40	12	12	12	12	12	13	13	13	13	4. 2
50	60	14.17	14.34	14.52	15.10	15.27	15.45	16.2	16.20	16.38	50	15	15	15	15	15	16	16	16	17	5. 3
Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to Seconds of Parallax.										Minutes of Altitude
	53'	54'	55'	56'	57'	58'	59'	60'	61'		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	
	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	

Correction of the Auxiliary Angle for the Sun's Apparent Altitude.

Sun's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	15°	20°	25°	30°	40°	44°	45°	50°	60°	70°	80°	90°	
Cor.—Additive	21"	12"	8"	5"	4"	3"	2"	2"	2"	2"	2"	2"	2"	2"	2"	3"	3"	3"	4"	4"	4"	5"	5"

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional Parts to										Minutes of Altitude		
											Seconds of Parallax.												
	53'	54'	55'	56'	57'	58'	59'	60'	61'	" 0"	" 1"	" 2"	" 3"	" 4"	" 5"	" 6"	" 7"	" 8"	" 9"				
30	0	60.14.21	14.39	14.57	15.14	15.32	15.50	16.7	16.25	16.43	0	0	0	1	1	2	2	2	3	Add.			
10	60.14.26	14.44	15.1	15.19	15.37	15.55	16.13	16.30	16.48	10	3	3	4	4	5	5	5	6	6	1' = 0"			
20	60.14.30	14.48	15.6	15.24	15.42	16.0	16.18	16.36	16.53	20	6	6	7	7	8	8	8	9	9	2. 1			
30	60.14.35	14.53	15.11	15.29	15.47	16.5	16.23	16.41	16.59	30	9	9	10	10	11	11	11	12	12	3. 1			
40	60.14.40	14.58	15.16	15.34	15.52	16.10	16.28	16.46	17.4	40	12	12	13	13	14	14	14	15	15	4. 1			
50	60.14.44	15.2	15.20	15.39	15.57	16.15	16.33	16.51	17.9	50	15	15	16	16	17	17	17	18	18	4. 2			
31	0	60.14.49	15.7	15.25	15.43	16.2	16.20	16.38	16.56	17.14	0	0	0	1	1	2	2	2	3	5. 2			
10	60.14.53	15.11	15.30	15.48	16.7	16.25	16.43	17.1	17.19	10	3	3	4	4	5	5	5	6	6	6. 3			
20	60.14.58	15.16	15.34	15.53	16.11	16.30	16.48	17.6	17.25	20	6	6	7	7	8	8	8	9	9	7. 3			
30	60.15.2	15.21	15.39	15.58	16.16	16.35	16.53	17.11	17.30	30	9	10	10	10	11	11	11	12	12	8. 4			
40	60.15.7	15.25	15.44	16.2	16.21	16.40	16.58	17.16	17.35	40	12	13	13	13	14	14	14	15	15	9. 4			
50	60.15.11	15.30	15.49	16.7	16.26	16.45	17.3	17.22	17.40	50	15	16	16	16	17	17	17	18	18				
32	0	60.15.16	15.35	15.53	16.12	16.31	16.49	17.8	17.27	17.45	0	0	0	1	1	2	2	2	3	Add.			
10	60.15.20	15.39	15.58	16.17	16.36	16.54	17.13	17.32	17.51	10	3	3	4	4	5	5	5	6	6	1' = 0"			
20	60.15.25	15.44	16.2	16.21	16.40	16.59	17.18	17.37	17.56	20	6	7	7	7	8	8	8	9	9	2. 1			
30	60.15.29	15.48	16.7	16.26	16.45	17.4	17.23	17.42	18.1	30	9	10	10	10	11	11	11	12	12	3. 1			
40	60.15.34	15.53	16.12	16.31	16.50	17.9	17.28	17.47	18.6	40	13	13	13	13	14	14	14	15	15	4. 2			
50	60.15.38	15.57	16.16	16.36	16.55	17.14	17.33	17.52	18.11	50	16	16	16	16	17	17	17	18	18				
33	0	60.15.43	16.2	16.21	16.40	16.59	17.19	17.38	17.57	18.16	0	0	0	1	1	2	2	2	3	Add.			
10	60.15.48	16.7	16.26	16.45	17.4	17.24	17.43	18.2	18.21	10	3	4	4	4	5	5	5	6	6	1' = 0"			
20	60.15.52	16.11	16.30	16.50	17.9	17.28	17.48	18.7	18.26	20	6	7	7	7	8	8	8	9	9	2. 1			
30	60.15.56	16.15	16.35	16.54	17.14	17.33	17.53	18.12	18.31	30	10	10	10	11	11	11	11	12	12	3. 1			
40	60.16.0	16.20	16.39	16.59	17.18	17.38	17.57	18.17	18.36	40	13	13	13	14	14	14	14	15	15	4. 2			
50	60.16.5	16.24	16.44	17.3	17.23	17.43	18.2	18.22	18.41	50	16	16	17	17	18	18	18	19	19				
34	0	60.16.9	16.29	16.48	17.8	17.28	17.47	18.7	18.27	18.46	0	0	0	1	1	2	2	2	3	Add.			
10	60.16.13	16.33	16.53	17.13	17.32	17.52	18.12	18.32	18.51	10	3	4	4	4	5	5	5	6	6	1' = 0"			
20	60.16.18	16.37	16.57	17.17	17.37	17.57	18.17	18.37	18.57	20	7	7	7	8	8	8	8	9	9	2. 1			
30	60.16.22	16.42	17.2	17.22	17.42	18.2	18.22	18.42	19.2	30	10	10	11	11	11	11	11	12	12	3. 1			
40	60.16.26	16.46	17.26	17.26	17.47	18.7	18.27	18.47	19.7	40	13	14	14	14	15	15	15	16	16	4. 2			
50	60.16.31	16.51	17.11	17.31	17.51	18.11	18.32	18.52	19.12	50	17	17	18	18	18	18	18	19	19				
35	0	60.16.35	16.55	17.15	17.36	17.56	18.16	18.36	18.56	19.17	0	0	0	1	1	2	2	2	3	Add.			
10	60.16.39	17.0	17.20	17.40	18.0	18.21	18.41	19.1	19.22	10	3	4	4	4	5	5	5	6	6	1' = 0"			
20	60.16.44	17.4	17.24	17.45	18.5	18.26	18.46	19.6	19.27	20	7	7	7	8	8	8	8	9	9	2. 1			
30	60.16.48	17.8	17.29	17.49	18.10	18.30	18.51	19.11	19.32	30	10	11	11	11	12	12	12	13	13	3. 1			
40	60.16.52	17.13	17.33	17.54	18.14	18.35	18.55	19.16	19.37	40	14	14	15	15	15	15	15	16	16	4. 2			
50	60.16.57	17.17	17.38	17.58	18.19	18.40	19.0	19.21	19.41	50	17	18	18	18	19	19	19	19	20				
36	0	60.17.1	17.22	17.42	18.3	18.24	18.44	19.5	19.26	19.46	0	0	0	1	1	2	2	2	3	Add.			
10	60.17.5	17.26	17.47	18.7	18.28	18.49	19.10	19.30	19.51	10	4	4	4	5	5	5	5	6	6	1' = 0"			
20	60.17.9	17.30	17.51	18.12	18.33	18.53	19.14	19.35	19.56	20	7	7	8	8	8	8	8	9	9	2. 1			
30	60.17.13	17.34	17.55	18.16	18.37	18.58	19.19	19.40	20.1	30	11	11	11	12	12	12	12	13	13	3. 1			
40	60.17.18	17.39	18.0	18.21	18.42	19.3	19.24	19.45	20.6	40	14	14	15	15	15	15	15	16	16	4. 2			
50	60.17.22	17.43	18.4	18.25	18.46	19.8	19.29	19.50	20.11	50	18	18	19	19	19	19	19	20	20				
37	0	60.17.26	17.47	18.9	18.30	18.51	19.12	19.33	19.54	20.15	0	0	0	1	1	2	2	2	3	Add.			
10	60.17.31	17.52	18.13	18.34	18.55	19.17	19.38	19.59	20.20	10	4	4	4	5	5	5	5	6	6	1' = 0"			
20	60.17.35	17.56	18.17	18.39	19.0	19.21	19.42	20.4	20.25	20	7	7	8	8	8	8	8	9	9	2. 1			
30	60.17.39	18.0	18.22	18.43	19.5	19.26	19.47	20.9	20.30	30	11	11	11	12	12	12	12	13	13	3. 1			
40	60.17.43	18.4	18.26	18.47	19.9	19.31	19.52	20.13	20.33	40	15	15	15	15	16	16	16	16	17	4. 2			
50	60.17.47	18.9	18.30	18.52	19.14	19.35	19.57	20.18	20.40	50	18	18	19	19	19	19	19	20	20				
38	0	60.17.51	18.13	18.35	18.56	19.18	19.39	20.1	20.23	20.44	0	0	0	1	1	2	2	2	3	Add.			
10	60.17.55	18.17	18.39	19.1	19.22	19.44	20.6	20.27	20.49	10	4	4	4	5	5	5	5	6	6	1' = 0"			
20	60.18.0	18.21	18.43	19.5	19.27	19.49	20.10	20.32	20.54	20	7	8	8	8	8	8	8	9	9	2. 1			
30	60.18.4	18.26	18.48	19.9	19.31	19.53	20.15	20.37	20.59	30	11	11	12	12	12	12	12	13	13	3. 1			
40	60.18.8	18.30	18.52	19.14	19.36	19.58	20.20	20.42	21.4	40	15	15	15	16	16	16	16	17	17	4. 2			
50	60.18.12	18.34	18.56	19.18	19.40	20.2	20.24	20.46	21.8	50	18	19	19	20	20	20	20	21	21				
39	0	60.18.16	18.38	19.0	19.22	19.44	20.7	20.29	20.51	21.13	0	0	0	1	1	2	2	2	3	Add.			
10	60.18.20	18.43	19.5	19.27	19.49	20.11	20.33	20.55	21.18	10	4	4	4	5	5	5	5	6	6	1' = 0"			
20	60.18.24	18.47	19.9	19.31	19.54	20.16	20.38	21.0	21.22	20	7	8	8	8	8	8	8	9	9	2. 1			
30	60.18.28	18.51	19.13	19.35	19.58	20.20	20.43	21.5	21.27	30	11	12	12	12	13	13	13	14	14	3. 1			
40	60.18.33	18.55	19.17	19.40	20.2	20.25	20.47	21.9	21.32	40	15	15	16	16	16	16	16	17	17	4. 2			
50	60.18.37	18.59	19.22	19.44	20.7	20.29	20.51	21.14	21.36	50	19	19	20	20	21	21	21	21	22				
Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to										Minutes of Altitude		
										Seconds of Parallax.													
53'	54'	55'	56'	57'	58'	59'	60'	61'	" 0"	" 1"	" 2"	" 3"	" 4"	" 5"	" 6"	" 7"	" 8"	" 9"					
Star's App. Alt. || ° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 20° | 30° | 40° | 50° | 70° | 90°																							
Cor.—Additive || 21° | 12° | 8° | 5° | 3° | 3° | 2° | 2° | 1° | 1° | 1° | 1° | 1° | 1° | 1° | 1° | 0° | 0° | 0° | 0° | 0° | 0° | 0° | 0°																							

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to Seconds of Parallax.										Miles of Altitude
	53'	54'	55'	56'	57'	58'	59'	60'	61'	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	
40	0	60.18.41	19.3	19.26	19.48	20.11	20.33	20.56	21.18	21.41	0	0	0	1	1	2	2	3	3	3	
10	60.18.45	19.8	19.30	19.53	20.15	20.38	21.0	21.23	21.45	21.68	10	4	4	5	5	6	6	7	7	7	Ad
20	60.18.49	19.12	19.34	19.57	20.20	20.42	21.5	21.28	21.50	22.13	20	8	8	8	9	9	10	10	11	11	1' =
30	60.18.53	19.16	19.38	20.1	20.24	20.47	21.9	21.32	21.55	22.18	30	11	12	12	13	13	14	14	15	15	2.
40	60.18.57	19.20	19.42	20.5	20.28	20.51	21.14	21.37	22.0	22.23	40	15	15	16	16	17	17	18	18	18	3.
50	60.19.1	19.24	19.47	20.9	20.32	20.55	21.18	21.41	22.4	22.67	50	19	19	20	20	21	21	22	22	23	4.
41	0	60.19.5	19.28	19.51	20.14	20.37	21.0	21.23	21.46	22.9	0	0	0	1	1	2	2	3	3	3	5.
10	60.19.9	19.32	19.55	20.18	20.41	21.4	21.27	21.50	22.13	22.36	10	4	4	5	5	6	6	7	7	7	6.
20	60.19.13	19.36	19.59	20.22	20.45	21.8	21.31	21.55	22.18	22.41	20	8	8	8	9	10	10	11	11	11	7.
30	60.19.17	19.40	20.3	20.26	20.50	21.13	21.36	21.59	22.23	22.46	30	12	12	13	13	14	14	15	15	15	8.
40	60.19.21	19.44	20.7	20.31	20.54	21.17	21.40	22.4	22.27	22.50	40	15	16	16	17	17	18	18	18	19	9.
50	60.19.25	19.48	20.11	20.35	20.58	21.21	21.45	22.8	22.31	22.54	50	19	20	20	21	21	22	22	23	23	
42	0	60.19.29	19.52	20.15	20.39	21.2	21.26	21.49	22.13	22.36	0	0	0	1	1	2	2	3	3	3	Ad
10	60.19.32	19.56	20.20	20.43	21.7	21.30	21.53	22.17	22.40	22.63	10	4	4	5	5	6	6	7	7	7	1' =
20	60.19.36	20.0	20.24	20.47	21.11	21.34	21.58	22.21	22.45	22.68	20	8	8	9	9	10	10	11	11	11	
30	60.19.40	20.4	20.28	20.51	21.15	21.38	22.2	22.26	22.49	22.72	30	12	12	13	13	14	14	15	15	15	2.
40	60.19.44	20.8	20.32	20.55	21.19	21.43	22.6	22.30	22.54	22.77	40	16	16	17	17	18	18	19	19	19	3.
50	60.19.48	20.12	20.36	20.59	21.23	21.47	22.11	22.34	22.58	22.81	50	20	20	21	21	22	22	23	23	23	4.
43	0	60.19.52	20.16	20.40	21.3	21.27	21.51	22.15	22.39	22.63	0	0	0	1	1	2	2	3	3	3	5.
10	60.19.56	20.20	20.44	21.7	21.31	21.55	22.19	22.43	22.67	22.91	10	4	4	5	5	6	6	7	7	7	6.
20	60.20.0	20.24	20.48	21.11	21.35	21.59	22.23	22.47	22.71	22.95	20	8	8	9	9	10	10	11	11	11	7.
30	60.20.3	20.27	20.51	21.15	21.39	22.4	22.28	22.52	22.76	23.0	30	12	12	13	13	14	14	15	15	15	8.
40	60.20.7	20.31	20.55	21.20	21.44	22.8	22.32	22.56	22.80	23.04	40	16	16	17	17	18	18	19	19	19	9.
50	60.20.11	20.35	21.0	21.24	21.48	22.12	22.36	22.60	22.84	23.08	50	20	20	21	21	22	22	23	23	23	
44	0	60.20.15	20.39	21.3	21.28	21.52	22.16	22.41	22.65	22.90	0	0	0	1	1	2	2	3	3	3	Ad
10	60.20.19	20.43	21.7	21.32	21.56	22.20	22.45	22.69	22.94	23.18	10	4	4	5	5	6	6	7	7	7	1' =
20	60.20.22	20.47	21.11	21.36	22.0	22.24	22.49	22.73	22.98	23.22	20	8	8	9	9	10	10	11	11	11	
30	60.20.26	20.51	21.15	21.40	22.4	22.28	22.53	22.78	23.02	23.26	30	12	12	13	13	14	14	15	15	15	2.
40	60.20.30	20.55	21.19	21.44	22.8	22.33	22.57	22.82	23.06	23.30	40	16	16	17	17	18	18	19	19	19	3.
50	60.20.34	20.59	21.23	21.47	22.12	22.37	22.61	22.86	23.10	23.34	50	20	21	21	22	22	23	23	23	24	4.
45	0	60.20.37	21.2	21.27	21.51	22.16	22.41	22.65	22.90	23.14	0	0	0	1	1	2	2	3	3	3	5.
10	60.20.41	21.6	21.31	21.55	22.20	22.45	22.70	22.94	23.19	23.43	10	4	4	5	5	6	6	7	7	7	6.
20	60.20.45	21.10	21.34	21.59	22.24	22.49	22.73	22.98	23.22	23.46	20	8	8	9	9	10	10	11	11	11	7.
30	60.20.48	21.13	21.38	22.3	22.28	22.53	22.78	23.02	23.27	23.51	30	12	12	13	13	14	14	15	15	15	8.
40	60.20.52	21.17	21.42	22.7	22.32	22.57	22.82	23.07	23.31	23.56	40	16	16	17	17	18	18	19	19	19	9.
50	60.20.56	21.21	21.46	22.11	22.36	22.61	22.86	23.10	23.35	23.59	50	20	21	21	22	22	23	23	23	24	
46	0	60.21.0	21.25	21.50	22.15	22.40	22.65	22.90	23.14	23.39	0	0	0	1	1	2	2	3	3	3	Ad
10	60.21.3	21.28	21.54	22.19	22.44	22.69	22.94	23.18	23.43	23.67	10	4	4	5	5	6	6	7	7	7	1' =
20	60.21.7	21.32	21.57	22.23	22.48	22.73	22.98	23.22	23.47	23.71	20	8	8	9	9	10	10	11	11	11	
30	60.21.10	21.36	22.1	22.26	22.52	22.77	23.02	23.27	23.51	23.76	30	12	12	13	13	14	14	15	15	15	2.
40	60.21.14	21.40	22.5	22.30	22.56	23.21	23.46	23.71	23.96	24.20	40	16	16	17	17	18	18	19	19	19	3.
50	60.21.18	21.43	22.8	22.34	22.59	23.25	23.50	23.75	24.00	24.25	50	20	21	21	22	22	23	23	23	24	4.
47	0	60.21.21	21.47	22.12	22.38	22.63	22.88	23.13	23.38	23.63	0	0	0	1	1	2	2	3	3	3	5.
10	60.21.25	21.50	22.16	22.42	22.67	22.93	23.18	23.43	23.68	23.93	10	4	4	5	5	6	6	7	7	7	6.
20	60.21.28	21.54	22.20	22.45	22.71	22.96	23.21	23.46	23.71	23.96	20	8	8	9	9	10	10	11	11	11	7.
30	60.21.32	21.58	22.23	22.49	22.74	23.00	23.25	23.50	23.75	24.00	30	12	12	13	13	14	14	15	15	15	8.
40	60.21.35	22.1	22.27	22.53	22.79	23.04	23.30	23.55	23.80	24.05	40	16	16	17	17	18	18	19	19	19	9.
50	60.21.39	22.5	22.31	22.57	22.83	23.08	23.34	23.59	23.84	24.10	50	20	21	21	22	22	23	23	23	24	
48	0	60.21.43	22.8	22.34	22.60	22.85	23.11	23.36	23.61	23.86	0	0	0	1	1	2	2	3	3	3	Ad
10	60.21.46	22.12	22.38	22.63	22.89	23.14	23.40	23.65	23.90	24.15	10	4	4	5	5	6	6	7	7	7	1' =
20	60.21.50	22.16	22.42	22.68	22.93	23.19	23.44	23.70	23.95	24.20	20	8	8	9	9	10	10	11	11	11	
30	60.21.53	22.19	22.45	22.71	22.97	23.22	23.48	23.73	24.00	24.25	30	12	12	13	13	14	14	15	15	15	2.
40	60.21.57	22.23	22.49	22.75	23.01	23.26	23.52	23.78	24.03	24.29	40	16	16	17	17	18	18	19	19	19	3.
50	60.22.0	22.26	22.52	22.78	23.04	23.30	23.55	23.81	24.07	24.32	50	20	21	21	22	22	23	23	23	24	4.
49	0	60.22.4	22.30	22.56	22.82	23.08	23.34	23.60	23.86	24.12	0	0	0	1	1	2	2	3	3	3	5.
10	60.22.7	22.33	22.59	22.85	23.11	23.37	23.63	23.89	24.15	24.41	10	4	4	5	5	6	6	7	7	7	6.
20	60.22.10	22.37	22.63	22.89	23.15	23.41	23.67	23.93	24.19	24.45	20	8	8	9	9	10	10	11	11	11	7.
30	60.22.14	22.40	22.66	22.92	23.18	23.44	23.70	23.96	24.22	24.48	30	12	12	13	13	14	14	15	15	15	8.
40	60.22.17	22.44	22.70	22.96	23.22	23.48	23.74	24.00	24.26	24.52	40	16	16	17	17	18	18	19	19	19	9.
50	60.22.21	22.47	22.73	22.99	23.25	23.51	23.77	24.03	24.29	24.55	50	20	21	21	22	22	23	23	23	24	
Moon's App. Alt.											Seconds of Parallax.										Miles of Altitude
Moon's Horizontal Parallax.											Proportional Parts to										

Correction of the Auxiliary Angle for the Sun's Apparent Altitude.

Sun's App. Alt.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
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AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to										Minutes of Altitude	
											Seconds of Parallax.											
	53'	54'	55'	56'	57'	58'	59'	60'	61'	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"			
50	60.22.24	22.51	23.18	23.44	24.11	24.37	25.4	25.31	25.58	0	0	0	1	1	2	2	3	3	4	Add. 1' = 0"		
10	60.22.28	22.54	23.21	23.48	24.15	24.41	25.8	25.35	26.1	10	4	5	5	6	6	7	7	8	8			
20	60.22.31	22.58	23.25	23.51	24.18	24.45	25.11	25.38	26.5	20	9	9	10	10	11	11	12	12	13			
30	60.22.34	23.1	23.28	23.55	24.22	24.49	25.15	25.42	26.9	30	13	14	14	15	15	16	16	17	17			
40	60.22.38	23.5	23.31	23.58	24.25	24.52	25.19	25.46	26.13	40	18	18	19	19	20	20	21	21	22			
50	60.22.41	23.8	23.35	24.2	24.29	24.56	25.23	25.50	26.17	50	22	23	23	24	24	25	25	26	26	4		
51	60.22.44	23.11	23.38	24.5	24.32	25.0	25.27	25.54	26.21	0	0	0	1	1	2	2	3	3	4	5		
10	60.22.47	23.15	23.42	24.9	24.36	25.3	25.30	25.57	26.24	10	5	5	5	6	6	7	7	8	8	9		
20	60.22.51	23.18	23.45	24.12	24.40	25.7	25.34	26.1	26.28	20	9	10	10	10	11	11	12	12	13	7		
30	60.22.54	23.21	23.49	24.16	24.43	25.10	25.38	26.5	26.32	30	14	14	15	15	16	16	17	17	18	3		
40	60.22.57	23.25	23.52	24.19	24.47	25.14	25.41	26.8	26.35	40	18	19	19	20	20	21	21	22	22	9		
50	60.23.1	23.28	23.55	24.23	24.50	25.17	25.45	26.12	26.39	50	23	23	24	24	25	25	26	26	27	3		
52	60.23.4	23.31	23.59	24.26	24.54	25.21	25.48	26.16	26.43	0	0	0	1	1	2	2	3	3	4	Add. 1' = 0"		
10	60.23.7	23.35	24.2	24.30	24.57	25.24	25.52	26.19	26.47	10	5	5	5	6	6	7	7	8	8		9	
20	60.23.10	23.38	24.5	24.33	25.0	25.28	25.55	26.23	26.50	20	9	10	10	11	11	11	12	12	13		11	
30	60.23.14	23.41	24.9	24.36	25.4	25.31	25.59	26.27	26.54	30	14	14	15	15	16	16	17	17	18		2	
40	60.23.17	23.44	24.12	24.40	25.7	25.35	26.3	26.30	26.58	40	18	19	19	20	20	21	21	22	22		23	
50	60.23.20	23.48	24.15	24.43	25.11	25.38	26.6	26.34	27.1	50	23	23	24	24	25	25	26	26	27	4		
53	60.23.23	23.51	24.19	24.46	25.14	25.42	26.10	26.37	27.5	0	0	0	1	1	2	2	3	3	4	5		
10	60.23.26	23.54	24.22	24.50	25.18	25.45	26.13	26.41	27.8	10	5	5	6	6	7	7	8	8	9	6		
20	60.23.29	23.57	24.25	24.53	25.21	25.49	26.17	26.44	27.12	20	9	10	10	11	11	12	12	13	13	7		
30	60.23.32	24.0	24.28	24.56	25.24	25.52	26.20	26.48	27.16	30	14	14	15	15	16	16	17	17	18	8		
40	60.23.36	24.4	24.32	25.0	25.28	25.56	26.24	26.52	27.19	40	19	19	20	20	21	21	22	22	23	9		
50	60.23.39	24.7	24.35	25.3	25.31	25.59	26.27	26.55	27.23	50	23	24	24	25	25	26	26	27	27	3		
54	60.23.42	24.10	24.38	25.6	25.34	26.2	26.30	26.59	27.27	0	0	0	1	1	2	2	3	3	4	Add. 1' = 0"		
10	60.23.45	24.13	24.41	25.10	25.38	26.6	26.34	27.2	27.30	10	5	5	6	6	7	7	8	8	9		6	
20	60.23.48	24.16	24.44	25.13	25.41	26.9	26.37	27.5	27.34	20	9	10	10	11	11	12	12	13	13		7	
30	60.23.51	24.19	24.48	25.16	25.44	26.13	26.41	27.9	27.37	30	14	15	15	16	16	17	17	18	18		2	
40	60.23.54	24.23	24.51	25.19	25.48	26.16	26.44	27.12	27.41	40	19	19	20	20	21	21	22	22	23		3	
50	60.23.57	24.26	24.54	25.22	25.51	26.19	26.48	27.16	27.44	50	24	24	25	25	26	26	27	27	28	4		
55	60.24.0	24.29	24.57	25.25	25.54	26.22	26.51	27.19	27.48	0	0	0	1	1	2	2	3	3	4	5		
10	60.24.3	24.32	25.0	25.29	25.57	26.26	26.54	27.23	27.51	10	5	5	6	6	7	7	8	8	9	6		
20	60.24.6	24.35	25.3	25.32	26.0	26.29	26.58	27.26	27.55	20	10	10	10	11	11	12	12	13	13	7		
30	60.24.9	24.38	25.6	25.35	26.4	26.32	27.1	27.29	27.58	30	14	15	15	16	16	17	17	18	18	8		
40	60.24.12	24.41	25.10	25.38	26.7	26.35	27.4	27.33	28.1	40	19	20	20	21	21	22	22	23	23	9		
50	60.24.15	24.44	25.13	25.41	26.10	26.39	27.7	27.36	28.5	50	24	24	25	25	26	26	27	27	28	3		
56	60.24.18	24.47	25.16	25.44	26.13	26.42	27.11	27.39	28.8	0	0	0	1	1	2	2	3	3	4	Add. 1' = 0"		
10	60.24.21	24.50	25.19	25.48	26.16	26.45	27.14	27.43	28.12	10	5	5	6	6	7	7	8	8	9		6	
20	60.24.24	24.53	25.22	25.51	26.19	26.48	27.17	27.46	28.15	20	10	10	11	11	12	12	13	13	14		7	
30	60.24.27	24.56	25.25	25.54	26.23	26.51	27.20	27.49	28.18	30	14	15	15	16	16	17	17	18	18		2	
40	60.24.30	24.59	25.28	25.57	26.26	26.55	27.24	27.53	28.22	40	19	20	20	21	21	22	22	23	23		3	
50	60.24.33	25.2	25.31	26.0	26.29	26.58	27.27	27.56	28.25	50	24	25	25	26	26	27	27	28	28	4		
57	60.24.36	25.4	25.34	26.3	26.32	27.1	27.30	27.59	28.28	0	0	0	1	1	2	2	3	3	4	5		
10	60.24.38	25.7	25.36	26.6	26.35	27.4	27.33	28.2	28.31	10	5	5	6	6	7	7	8	8	9	6		
20	60.24.41	25.10	25.39	26.9	26.38	27.7	27.36	28.6	28.35	20	10	10	11	11	12	12	13	13	14	7		
30	60.24.44	25.13	25.42	26.12	26.41	27.10	27.40	28.9	28.38	30	15	15	16	16	17	17	18	18	19	8		
40	60.24.47	25.16	25.45	26.15	26.44	27.13	27.43	28.12	28.41	40	19	20	20	21	21	22	22	23	23	9		
50	60.24.50	25.19	25.48	26.18	26.47	27.16	27.46	28.15	28.44	50	24	25	25	26	26	27	27	28	28	3		
58	60.24.52	25.22	25.51	26.21	26.50	27.19	27.49	28.18	28.48	0	0	0	1	1	2	2	3	3	4	Add. 1' = 0"		
10	60.24.55	25.25	25.54	26.24	26.53	27.23	27.52	28.21	28.51	10	5	5	6	6	7	7	8	8	9		6	
20	60.24.58	25.28	25.57	26.27	26.56	27.26	27.55	28.25	28.54	20	10	10	11	11	12	12	13	13	14		7	
30	60.25.1	25.30	26.0	26.29	26.59	27.29	27.58	28.28	28.57	30	15	15	16	16	17	17	18	18	19		2	
40	60.25.3	25.33	26.3	26.32	27.2	27.32	28.1	28.31	29.0	40	20	20	21	21	22	22	23	23	24		3	
50	60.25.6	25.36	26.6	26.35	27.5	27.34	28.4	28.34	29.3	50	25	25	26	26	27	27	28	28	29	4		
59	60.25.9	25.39	26.8	26.38	27.8	27.37	28.7	28.37	29.6	0	0	0	1	1	2	2	3	3	4	5		
10	60.25.11	25.41	26.11	26.41	27.11	27.40	28.10	28.40	29.10	10	5	5	6	6	7	7	8	8	9	6		
20	60.25.14	25.44	26.14	26.44	27.13	27.43	28.13	28.43	29.13	20	10	10	11	11	12	12	13	13	14	7		
30	60.25.17	25.47	26.17	26.47	27.16	27.46	28.16	28.46	29.16	30	15	15	16	16	17	17	18	18	19	8		
40	60.25.20	25.49	26.19	26.49	27.19	27.49	28.19	28.49	29.19	40	20	20	21	21	22	22	23	23	24	9		
50	60.25.22	25.52	26.22	26.52	27.22	27.52	28.22	28.52	29.22	50	25	25	26	26	27	27	28	28	29	3		
Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to										Minutes of Altitude	
											Seconds of Parallax.											
	53'	54'	55'	56'	57'	58'	59'	60'	61'		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		

TABLE XX.
AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to										Minutes of Altitude	
											Seconds of Parallax.											
	53'	54'	55'	56'	57'	58'	59'	60'	61'	"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
60	0	60. 25. 25	25. 55	26. 25	26. 55	27. 25	27. 55	28. 25	28. 55	29. 25	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 25. 27	25. 57	26. 28	26. 58	27. 28	27. 58	28. 28	28. 58	29. 28	10	5	6	6	7	7	8	8	9	9	10		
20	60. 25. 30	26. 0	26. 30	27. 1	27. 31	28. 1	28. 31	29. 1	29. 31	20	10	11	11	12	12	13	13	14	14	15	1' = 0"	
30	60. 25. 33	26. 3	26. 33	27. 3	27. 33	28. 4	28. 34	29. 4	29. 34	30	15	16	16	17	17	18	18	19	19	20	2. 1	
40	60. 25. 35	26. 5	26. 35	27. 6	27. 36	28. 6	28. 37	29. 7	29. 37	40	20	21	21	22	22	23	23	24	24	25	3. 1	
50	60. 25. 38	26. 8	26. 38	27. 9	27. 39	28. 9	28. 39	29. 10	29. 40	50	25	26	26	27	27	28	28	29	29	30	4. 1	
61	0	60. 25. 40	26. 11	26. 41	27. 11	27. 42	28. 12	28. 42	29. 12	29. 43	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 25. 43	26. 13	26. 44	27. 14	27. 44	28. 15	28. 45	29. 15	29. 46	10	5	6	6	7	7	8	8	9	9	10		
20	60. 25. 45	26. 16	26. 46	27. 17	27. 47	28. 18	28. 48	29. 18	29. 49	20	10	11	11	12	12	13	13	14	14	15	1' = 0"	
30	60. 25. 48	26. 18	26. 49	27. 19	27. 50	28. 20	28. 51	29. 21	29. 51	30	15	16	16	17	17	18	18	19	19	20	2. 1	
40	60. 25. 51	26. 21	26. 51	27. 22	27. 52	28. 23	28. 53	29. 24	29. 54	40	20	21	21	22	22	23	23	24	24	25	3. 1	
50	60. 25. 53	26. 23	26. 54	27. 25	27. 55	28. 26	28. 56	29. 27	29. 57	50	25	26	26	27	27	28	28	29	29	30	4. 1	
62	0	60. 25. 55	26. 26	26. 57	27. 27	27. 58	28. 28	28. 59	29. 29	30. 0	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 25. 58	26. 28	26. 59	27. 30	28. 0	28. 31	29. 2	29. 32	30. 3	10	5	6	6	7	7	8	8	9	9	10		
20	60. 26. 0	26. 31	27. 2	27. 32	28. 3	28. 34	29. 4	29. 35	30. 6	20	10	11	11	12	12	13	13	14	14	15	1' = 0"	
30	60. 26. 3	26. 33	27. 4	27. 35	28. 6	28. 36	29. 7	29. 38	30. 8	30	15	16	16	17	17	18	18	19	19	20	2. 1	
40	60. 26. 5	26. 36	27. 7	27. 37	28. 8	28. 39	29. 10	29. 40	30. 11	40	20	21	21	22	22	23	23	24	24	25	3. 1	
50	60. 26. 7	26. 38	27. 9	27. 40	28. 11	28. 42	29. 12	29. 43	30. 14	50	25	26	26	27	27	28	28	29	29	30	4. 1	
63	0	60. 26. 10	26. 41	27. 12	27. 43	28. 13	28. 44	29. 15	29. 46	30. 17	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 26. 12	26. 43	27. 14	27. 45	28. 16	28. 47	29. 18	29. 49	30. 19	10	5	6	6	7	7	8	8	9	9	10		
20	60. 26. 15	26. 46	27. 17	27. 48	28. 19	28. 50	29. 20	29. 51	30. 22	20	10	11	11	12	12	13	13	14	14	15	1' = 0"	
30	60. 26. 17	26. 48	27. 19	27. 50	28. 21	28. 52	29. 23	29. 54	30. 25	30	16	16	17	17	18	18	19	19	20	20	2. 1	
40	60. 26. 19	26. 50	27. 21	27. 52	28. 23	28. 54	29. 25	29. 56	30. 27	40	21	21	22	22	23	23	24	24	25	25	3. 1	
50	60. 26. 22	26. 53	27. 24	27. 55	28. 26	28. 57	29. 28	29. 59	30. 30	50	26	27	27	28	28	29	29	30	30	31	4. 1	
64	0	60. 26. 24	26. 55	27. 26	27. 57	28. 28	28. 59	29. 31	30. 2	30. 33	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 26. 26	26. 57	27. 29	28. 0	28. 31	29. 2	29. 33	30. 4	30. 35	10	5	6	6	7	7	8	8	9	9	10		
20	60. 26. 28	27. 0	27. 31	28. 2	28. 33	29. 5	29. 36	30. 7	30. 38	20	10	11	11	12	12	13	13	14	14	15	1' = 0"	
30	60. 26. 31	27. 2	27. 33	28. 5	28. 36	29. 7	29. 38	30. 9	30. 41	30	16	16	17	17	18	18	19	19	20	20	2. 1	
40	60. 26. 33	27. 4	27. 36	28. 7	28. 38	29. 9	29. 41	30. 12	30. 43	40	21	21	22	22	23	23	24	24	25	25	3. 1	
50	60. 26. 35	27. 7	27. 38	28. 9	28. 41	29. 12	29. 43	30. 14	30. 46	50	26	27	27	28	28	29	29	30	30	31	4. 1	
65	0	60. 26. 37	27. 9	27. 40	28. 12	28. 43	29. 14	29. 46	30. 17	30. 48	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 26. 40	27. 11	27. 43	28. 14	28. 45	29. 17	29. 48	30. 20	30. 51	10	5	6	6	7	7	8	8	9	9	10		
20	60. 26. 42	27. 13	27. 45	28. 16	28. 48	29. 19	29. 51	30. 22	30. 53	20	10	11	11	12	12	13	13	14	14	15	1' = 0"	
30	60. 26. 44	27. 16	27. 47	28. 19	28. 50	29. 22	29. 53	30. 24	30. 56	30	16	16	17	17	18	18	19	19	20	20	2. 1	
40	60. 26. 46	27. 18	27. 49	28. 21	28. 52	29. 24	29. 55	30. 27	30. 59	40	21	21	22	22	23	23	24	24	25	25	3. 1	
50	60. 26. 48	27. 20	27. 52	28. 23	28. 55	29. 26	29. 58	30. 29	31. 1	50	26	27	27	28	28	29	29	30	30	31	4. 1	
66	0	60. 26. 51	27. 22	27. 54	28. 25	28. 57	29. 29	30. 0	30. 32	31. 3	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 26. 53	27. 24	27. 56	28. 28	28. 59	29. 31	30. 3	30. 34	31. 6	10	5	6	6	7	7	8	8	9	9	10		
20	60. 26. 55	27. 27	27. 58	28. 30	29. 2	29. 33	30. 5	30. 36	31. 8	20	11	11	12	12	13	13	14	14	15	15	1' = 0"	
30	60. 26. 57	27. 29	28. 0	28. 32	29. 4	29. 35	30. 7	30. 39	31. 11	30	16	16	17	17	18	18	19	19	20	20	2. 1	
40	60. 26. 59	27. 31	28. 2	28. 34	29. 6	29. 38	30. 10	30. 41	31. 13	40	21	22	22	23	23	24	24	25	25	26	3. 1	
50	60. 27. 1	27. 33	28. 5	28. 37	29. 8	29. 40	30. 12	30. 44	31. 15	50	27	27	28	28	29	29	30	30	31	31	4. 1	
67	0	60. 27. 3	27. 35	28. 7	28. 39	29. 10	29. 42	30. 14	30. 46	31. 18	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 27. 5	27. 37	28. 9	28. 41	29. 13	29. 45	30. 16	30. 48	31. 20	10	5	6	6	7	7	8	8	9	9	10		
20	60. 27. 7	27. 39	28. 11	28. 43	29. 15	29. 47	30. 19	30. 50	31. 22	20	11	11	12	12	13	13	14	14	15	15	1' = 0"	
30	60. 27. 9	27. 41	28. 13	28. 45	29. 17	29. 49	30. 21	30. 53	31. 25	30	16	17	17	18	18	19	19	20	20	21	2. 1	
40	60. 27. 11	27. 43	28. 15	28. 47	29. 19	29. 51	30. 23	30. 55	31. 27	40	21	22	22	23	23	24	24	25	25	26	3. 1	
50	60. 27. 13	27. 45	28. 17	28. 49	29. 21	29. 53	30. 25	30. 57	31. 29	50	27	27	28	28	29	29	30	30	31	31	4. 1	
68	0	60. 27. 15	27. 47	28. 19	28. 51	29. 23	29. 55	30. 28	31. 0	31. 32	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 27. 17	27. 49	28. 21	28. 53	29. 26	29. 58	30. 30	31. 2	31. 34	10	5	6	6	7	7	8	8	9	9	10		
20	60. 27. 19	27. 51	28. 23	28. 55	29. 28	30. 0	30. 32	31. 4	31. 36	20	11	11	12	12	13	13	14	14	15	15	1' = 0"	
30	60. 27. 21	27. 53	28. 25	28. 57	29. 30	30. 2	30. 34	31. 6	31. 38	30	16	17	17	18	18	19	19	20	20	21	2. 1	
40	60. 27. 23	27. 55	28. 27	28. 59	29. 32	30. 4	30. 36	31. 8	31. 40	40	21	22	22	23	23	24	24	25	25	26	3. 1	
50	60. 27. 25	27. 57	28. 29	29. 2	29. 34	30. 6	30. 38	31. 11	31. 43	50	27	27	28	28	29	29	30	30	31	31	4. 1	
69	0	60. 27. 27	27. 59	28. 31	29. 4	29. 36	30. 8	30. 40	31. 13	31. 45	0	0	1	1	2	2	3	3	4	4	5	Add.
10	60. 27. 29	28. 1	28. 33	29. 6	29. 38	30. 10	30. 42	31. 15	31. 47	10	5	6	6	7	7	8	8	9	9	10		
20	60. 27. 30	28. 3	28. 35	29. 8	29. 40	30. 12	30															

AUXILIARY ANGLES.

Moon's Horizontal Parallax.										Proportional Parts to Seconds of Parallax.										Minutes of Altitude
54'	55'	56'	57'	58'	59'	60'	61'	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"			
38	28.10	28.43	29.15	29.48	30.20	30.53	31.25	31.57	0	0	1	2	3	4	5			Add.		
40	28.12	28.45	29.17	29.50	30.22	30.55	31.27	31.59	10	5	6	7	8	9	10	10	1'	0"		
41	28.14	28.46	29.19	29.52	30.24	30.57	31.29	32.01	20	11	12	13	14	15	16	11	2'	0"		
43	28.16	28.48	29.21	29.54	30.26	30.59	31.31	32.03	30	16	17	18	19	20	21	16	3'	0"		
45	28.18	28.50	29.23	29.55	30.28	31.01	31.33	32.05	40	22	23	24	25	26	26	22	4'	1		
47	28.19	28.52	29.24	29.57	30.30	31.03	31.35	32.07	50	27	28	29	30	31	31	28	3'	1		
48	28.21	28.54	29.26	29.59	30.32	31.05	31.37	32.09	0	0	1	2	3	4	5			1		
50	28.23	28.55	29.28	30.01	30.34	31.07	31.39	32.11	10	5	6	7	8	9	10	10		6.		
52	28.24	28.57	29.30	30.03	30.35	31.08	31.41	32.13	20	11	12	13	14	15	15	16	7.	1		
53	28.26	28.59	29.32	30.05	30.37	31.10	31.43	32.15	30	16	17	18	19	20	20	21	8.	1		
55	28.28	29.01	29.33	30.06	30.39	31.12	31.44	32.17	40	22	23	24	25	26	26	27	9.	2		
57	28.29	29.02	29.35	30.08	30.41	31.14	31.46	32.19	50	27	28	29	30	31	31	32	32			
58	28.31	29.04	29.37	30.10	30.42	31.15	31.48	32.21	0	0	1	2	3	4	5			1		
0	28.33	29.06	29.38	30.11	30.44	31.17	31.50	32.23	10	5	6	7	8	9	10	10		6.		
1	28.34	29.07	29.40	30.13	30.46	31.19	31.52	32.25	20	11	12	13	14	15	15	16	7.	1		
3	28.36	29.09	29.42	30.15	30.48	31.21	31.54	32.27	30	16	17	18	19	20	20	21	8.	1		
5	28.37	29.11	29.44	30.17	30.49	31.22	31.55	32.28	40	22	23	24	25	26	26	27	9.	2		
6	28.39	29.12	29.45	30.18	30.51	31.24	31.57	32.30	50	27	28	29	30	31	31	32	32			
8	28.41	29.14	29.47	30.20	30.53	31.26	31.59	32.32	0	0	1	2	3	4	5			1		
9	28.42	29.15	29.48	30.21	30.54	31.27	32.00	32.34	10	5	6	7	8	9	10	10		6.		
11	28.44	29.17	29.50	30.23	30.56	31.29	32.02	32.35	20	11	12	13	14	15	15	16	7.	1		
12	28.45	29.19	29.52	30.25	30.58	31.31	32.04	32.37	30	16	17	18	19	20	20	21	8.	1		
14	28.47	29.21	29.53	30.26	30.59	31.33	32.06	32.39	40	22	23	24	25	26	26	27	9.	1		
15	28.48	29.22	29.55	30.28	31.01	31.34	32.08	32.40	50	27	28	29	30	31	31	32	32			
16	28.50	29.23	29.56	30.30	31.03	31.36	32.10	32.42	0	0	1	2	3	4	5			1		
18	28.51	29.24	29.58	30.31	31.04	31.37	32.11	32.44	10	5	6	7	8	9	10	10		6.		
19	28.53	29.26	29.59	30.32	31.05	31.39	32.12	32.45	20	11	12	13	14	15	15	16	7.	1		
21	28.54	29.27	30.01	30.34	31.07	31.40	32.14	32.47	30	17	17	18	19	20	20	21	8.	1		
22	28.55	29.29	30.02	30.35	31.08	31.42	32.15	32.49	40	22	23	24	25	26	26	27	9.	1		
24	28.57	29.30	30.03	30.37	31.10	31.44	32.17	32.50	50	27	28	29	30	31	31	32	33			
25	28.58	29.32	30.05	30.38	31.12	31.45	32.18	32.52	0	0	1	2	3	4	5			1		
26	29.00	29.33	30.06	30.40	31.13	31.47	32.20	32.53	10	5	6	7	8	9	10	10		6.		
28	29.01	29.34	30.07	30.42	31.15	31.48	32.21	32.55	20	11	12	13	14	15	15	16	7.	1		
29	29.02	29.36	30.09	30.43	31.16	31.50	32.23	32.56	30	17	17	18	19	20	20	21	8.	1		
30	29.03	29.37	30.11	30.44	31.18	31.51	32.24	32.58	40	22	23	24	25	26	26	27	9.	1		
32	29.05	29.38	30.12	30.46	31.19	31.52	32.26	32.59	50	27	28	29	30	31	31	32	33			
33	29.06	29.40	30.13	30.47	31.20	31.54	32.27	33.01	0	0	1	2	3	4	5			1		
34	29.08	29.41	30.15	30.48	31.22	31.55	32.29	33.03	10	5	6	7	8	9	10	10		6.		
35	29.09	29.42	30.16	30.50	31.23	31.56	32.30	33.05	20	11	12	13	14	15	15	16	7.	1		
37	29.10	29.44	30.17	30.51	31.25	31.58	32.32	33.07	30	17	17	18	19	20	20	21	8.	1		
38	29.11	29.45	30.18	30.52	31.26	31.59	32.33	33.09	40	22	23	24	25	26	26	27	9.	1		
39	29.13	29.46	30.20	30.53	31.27	32.01	32.34	33.11	50	27	28	29	30	31	31	32	33			
40	29.14	29.48	30.21	30.55	31.28	32.02	32.35	33.13	0	0	1	2	3	4	5			1		
41	29.15	29.49	30.23	30.56	31.30	32.03	32.36	33.15	10	5	6	7	8	9	10	10		6.		
43	29.16	29.50	30.24	30.57	31.31	32.04	32.37	33.17	20	11	12	13	14	15	15	16	7.	1		
44	29.17	29.51	30.25	30.59	31.32	32.05	32.38	33.19	30	17	17	18	19	20	20	21	8.	1		
45	29.19	29.52	30.26	31.01	31.33	32.06	32.41	33.21	40	22	23	24	25	26	26	27	9.	1		
46	29.20	29.54	30.27	31.02	31.34	32.07	32.42	33.23	50	27	28	29	30	31	31	32	33			
47	29.21	29.55	30.28	31.03	31.35	32.08	32.43	33.25	0	0	1	2	3	4	5			1		
48	29.22	29.56	30.30	31.04	31.36	32.09	32.44	33.27	10	5	6	7	8	9	10	10		6.		
49	29.23	29.57	30.31	31.05	31.37	32.10	32.45	33.29	20	11	12	13	14	15	15	16	7.	1		
50	29.24	29.58	30.32	31.06	31.38	32.11	32.46	33.31	30	17	17	18	19	20	20	21	8.	1		
51	29.25	29.59	30.33	31.07	31.39	32.12	32.47	33.33	40	22	23	24	25	26	26	27	9.	1		
52	29.26	30.00	30.34	31.08	31.40	32.13	32.48	33.35	50	27	28	29	30	31	31	32	33			
53	29.27	30.01	30.35	31.09	31.41	32.14	32.49	33.37	0	0	1	2	3	4	5			1		
54	29.28	30.02	30.36	31.10	31.42	32.15	32.50	33.39	10	5	6	7	8	9	10	10		6.		
55	29.29	30.03	30.37	31.11	31.43	32.16	32.51	33.41	20	11	12	13	14	15	15	16	7.	1		
56	29.30	30.04	30.38	31.12	31.44	32.17	32.52	33.43	30	17	17	18	19	20	20	21	8.	1		
57	29.31	30.05	30.39	31.13	31.45	32.18	32.53	33.45	40	22	23	24	25	26	26	27	9.	1		
58	29.32	30.06	30.40	31.14	31.46	32.19	32.54	33.47	50	27	28	29	30	31	31	32	33			
59	29.33	30.07	30.41	31.15	31.47	32.20	32.55	33.49	0	0	1	2	3	4	5			1		
60	29.34	30.08	30.42	31.16	31.48	32.21	32.56	33.51	10	5	6	7	8	9	10	10		6.		
61	29.35	30.09	30.43	31.17	31.49	32.22	32.57	33.53	20	11	12	13	14	15	15	16	7.	1		
62	29.36	30.10	30.44	31.18	31.50	32.23	32.58	33.55	30	17	17	18	19	20	20	21	8.	1		
63	29.37	30.11	30.45	31.19	31.51	32.24	32.59	33.57	40	22	23	24	25	26	26	27	9.	1		
64	29.38	30.12	30.46	31.20	31.52	32.25	33.00	33.59	50	27	28	29	30	31	31	32	33			
65	29.39	30.13	30.47	31.21	31.53	32.26	33.01	34.01	0	0	1	2	3	4	5			1		
66	29.40	30.14	30.48	31.22	31.54	32.27	33.02	34.03	10	5	6	7	8	9	10	10		6.		
67	29.41	30.15	30.49	31.23	31.55	32.28	33.03	34.05	20	11	12	13	14	15	15	16	7.	1		
68	29.42	30.16	30.50	31.24	31.56	32.29	33.04	34.07	30	17	17	18	19	20	20	21	8.	1		
69	29.43	30.17	30.51	31.25	31.57	32.30	33.05	34.09	40	22	23	24	25	26	26	27	9.	1		
70	29.4																			

AUXILIARY ANGLES.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to Seconds of Parallax.										Minute of Altitude
	53'	54'	55'	56'	57'	58'	59'	60'	61'	"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	
	°	'	"	°	'	"	°	'	"		°	'	"	°	'	"	°	'	"	°	
80	0	60.28.59	29.33.30	7.30.41	31.15.31	49.32.23	32.57.33	31.0	0	0	0	1	2	3	4	5					Sub
10	60.29.0	29.34.30	8.30.42	31.16.31	50.32.24	32.58.33	32.10	6	6	6	7	8	9	10	11					1' =	
20	60.29.1	29.35.30	9.30.43	31.17.31	51.32.25	32.59.33	33.20	11	12	12	13	14	15	16	17					2.	
30	60.29.2	29.36.30	10.30.44	31.18.31	52.32.26	33.0	33.34	17	18	18	19	20	21	22						3.	
40	60.29.3	29.37.30	11.30.45	31.19.31	53.32.27	33.1	33.35	23	24	24	25	26	27	28						4.	
50	60.29.4	29.38.30	12.30.46	31.20.31	54.32.28	33.2	33.36	28	29	29	30	31	32	33	34						
81	0	60.29.5	29.39.30	13.30.47	31.21.31	55.32.29	33.3	33.37	0	0	1	2	3	4	5					Sub	
10	60.29.6	29.40.30	14.30.48	31.22.31	56.32.30	33.4	33.38	6	6	6	7	8	9	10	11					1' =	
20	60.29.7	29.41.30	15.30.49	31.23.31	57.32.31	33.5	33.39	11	12	12	13	14	15	16	17					2.	
30	60.29.8	29.42.30	16.30.50	31.24.31	58.32.32	33.6	33.40	17	18	18	19	20	21	22						3.	
40	60.29.9	29.43.30	17.30.51	31.25.31	59.32.33	33.7	33.41	23	24	24	25	26	27	28						4.	
50	60.29.10	29.44.30	18.30.52	31.26.31	0.32.34	33.8	33.42	28	29	29	30	31	32	33	34						
82	0	60.29.11	29.45.30	19.30.53	31.27.31	1.32.35	33.9	33.43	0	0	1	2	3	4	5					Sub	
10	60.29.12	29.46.30	20.30.54	31.28.31	2.32.36	33.10	33.45	6	6	6	7	8	9	10	11					1' =	
20	60.29.13	29.47.30	21.30.55	31.29.31	3.32.37	33.11	33.46	11	12	12	13	14	15	16	17					2.	
30	60.29.14	29.48.30	22.30.56	31.30.31	4.32.38	33.12	33.47	17	18	18	19	20	21	22						3.	
40	60.29.15	29.49.30	23.30.57	31.31.31	5.32.39	33.13	33.48	23	24	24	25	26	27	28						4.	
50	60.29.16	29.50.30	24.30.58	31.32.31	6.32.40	33.14	33.49	28	29	29	30	31	32	33	34						
83	0	60.29.17	29.51.30	25.30.59	31.33.31	7.32.41	33.50	33.51	0	0	1	2	3	4	5					Sub	
10	60.29.18	29.52.30	26.31.0	31.34.31	8.32.42	33.16	33.51	6	6	6	7	8	9	10	11					1' =	
20	60.29.19	29.53.30	27.31.1	31.35.31	9.32.43	33.17	33.52	11	12	12	13	14	15	16	17					2.	
30	60.29.20	29.54.30	28.31.2	31.36.31	10.32.44	33.18	33.53	17	18	18	19	20	21	22						3.	
40	60.29.21	29.55.30	29.31.3	31.37.31	11.32.45	33.19	33.54	23	24	24	25	26	27	28						4.	
50	60.29.22	29.56.30	30.31.4	31.38.31	12.32.46	33.20	33.55	28	29	29	30	31	32	33	34						
84	0	60.29.23	29.57.30	31.39.31	13.32.47	33.21	33.56	33.56	0	0	1	2	3	4	5					Sub	
10	60.29.24	29.58.30	32.31.5	31.40.31	14.32.48	33.22	33.57	6	6	6	7	8	9	10	11					1' =	
20	60.29.25	29.59.30	33.31.6	31.41.31	15.32.49	33.23	33.58	11	12	12	13	14	15	16	17					2.	
30	60.29.26	29.60.30	34.31.7	31.42.31	16.32.50	33.24	33.59	17	18	18	19	20	21	22						3.	
40	60.29.27	29.61.30	35.31.8	31.43.31	17.32.51	33.25	33.60	23	24	24	25	26	27	28						4.	
50	60.29.28	29.62.30	36.31.9	31.44.31	18.32.52	33.26	33.61	28	29	29	30	31	32	33	34						
85	0	60.29.29	29.63.30	37.31.10	31.45.31	19.32.53	33.27	33.62	0	0	1	2	3	4	5					Sub	
10	60.29.30	29.64.30	38.31.11	31.46.31	20.32.54	33.28	33.63	6	6	6	7	8	9	10	11					1' =	
20	60.29.31	29.65.30	39.31.12	31.47.31	21.32.55	33.29	33.64	11	12	12	13	14	15	16	17					2.	
30	60.29.32	29.66.30	40.31.13	31.48.31	22.32.56	33.30	33.65	17	18	18	19	20	21	22						3.	
40	60.29.33	29.67.30	41.31.14	31.49.31	23.32.57	33.31	33.66	23	24	24	25	26	27	28						4.	
50	60.29.34	29.68.30	42.31.15	31.50.31	24.32.58	33.32	33.67	28	29	29	30	31	32	33	34						
86	0	60.29.35	29.69.30	43.31.16	31.51.31	25.32.59	33.33	33.68	0	0	1	2	3	4	5					Sub	
10	60.29.36	29.70.30	44.31.17	31.52.31	26.33.0	33.34	33.69	6	6	6	7	8	9	10	11					1' =	
20	60.29.37	29.71.30	45.31.18	31.53.31	27.33.1	33.35	33.70	11	12	12	13	14	15	16	17					2.	
30	60.29.38	29.72.30	46.31.19	31.54.31	28.33.2	33.36	33.71	17	18	18	19	20	21	22						3.	
40	60.29.39	29.73.30	47.31.20	31.55.31	29.33.3	33.37	33.72	23	24	24	25	26	27	28						4.	
50	60.29.40	29.74.30	48.31.21	31.56.31	30.33.4	33.38	33.73	28	29	29	30	31	32	33	34						
87	0	60.29.41	29.75.30	49.31.22	31.57.31	31.33.5	33.74	33.74	0	0	1	2	3	4	5					Sub	
10	60.29.42	29.76.30	50.31.23	31.58.31	32.33.6	33.39	33.75	6	6	6	7	8	9	10	11					1' =	
20	60.29.43	29.77.30	51.31.24	31.59.31	33.33.7	33.40	33.76	11	12	12	13	14	15	16	17					2.	
30	60.29.44	29.78.30	52.31.25	32.0.31	34.33.8	33.41	33.77	17	18	18	19	20	21	22						3.	
40	60.29.45	29.79.30	53.31.26	32.1.31	35.33.9	33.42	33.78	23	24	24	25	26	27	28						4.	
50	60.29.46	29.80.30	54.31.27	32.2.31	36.33.10	33.43	33.79	28	29	29	30	31	32	33	34						
88	0	60.29.47	29.81.30	55.31.28	32.3.31	37.33.11	33.80	33.80	0	0	1	2	3	4	5					Sub	
10	60.29.48	29.82.30	56.31.29	32.4.31	38.33.12	33.44	33.81	6	6	6	7	8	9	10	11					1' =	
20	60.29.49	29.83.30	57.31.30	32.5.31	39.33.13	33.45	33.82	11	12	12	13	14	15	16	17					2.	
30	60.29.50	29.84.30	58.31.31	32.6.31	40.33.14	33.46	33.83	17	18	18	19	20	21	22						3.	
40	60.29.51	29.85.30	59.31.32	32.7.31	41.33.15	33.47	33.84	23	24	24	25	26	27	28						4.	
50	60.29.52	29.86.30	60.31.33	32.8.31	42.33.16	33.48	33.85	28	29	29	30	31	32	33	34						
89	0	60.29.53	29.87.30	61.31.34	32.9.31	43.33.17	33.86	33.86	0	0	1	2	3	4	5					Sub	
10	60.29.54	29.88.30	62.31.35	32.10.31	44.33.18	33.49	33.87	6	6	6	7	8	9	10	11					1' =	
20	60.29.55	29.89.30	63.31.36	32.11.31	45.33.19	33.50	33.88	11	12	12	13	14	15	16	17					2.	
30	60.29.56	29.90.30	64.31.37	32.12.31	46.33.20	33.51	33.89	17	18	18	19	20	21	22						3.	
40	60.29.57	29.91.30	65.31.38	32.13.31	47.33.21	33.52	33.90	23	24	24	25	26	27	28						4.	
50	60.29.58	29.92.30	66.31.39	32.14.31	48.33.22	33.53	33.91	28	29	29	30	31	32	33	34						
90	0	60.29.59	29.93.30	67.31.40	32.15.31	49.33.23	33.92	33.92	0	0	1	2	3	4	5					Sub	
10	60.29.60	29.94.30	68.31.41	32.16.31	50.33.24	33.54	33.93	6	6	6	7	8	9	10	11					1' =	
20	60.29.61	29.95.30	69.31.42	32.17.31	51.33.25	33.55	33.94	11	12	12	13	14	15	16	17					2.	
30	60.29.62	29.96.30	70.31.43	32.18.31	52.33.26	33.56	33.95	1													

Planet's App. Alt.	Planet's Horizontal Parallax.																				Planet's App. Alt.
	1'	3'	5'	7'	9'	11'	13'	15'	17'	19'	21'	23'	25'	27'	29'	31'	33'				
10	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	10			
2	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2			
3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	3			
4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4			
5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5			
6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	6			
7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	7			
8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	8			
10	1	1	1	1	2	2	2	2	3	3	3	3	3	4	4	4	4	10			
14	1	1	1	1	2	2	2	2	3	3	3	3	3	4	4	4	4	14			
18	1	1	1	1	2	2	2	2	3	3	3	3	3	4	4	4	4	18			
20	1	1	1	1	2	2	2	2	3	3	3	3	3	4	4	4	4	20			
26	1	1	1	1	2	3	3	3	3	4	4	4	4	5	5	5	5	26			
32	1	1	1	1	2	3	3	3	4	5	5	5	5	6	6	6	6	32			
40	1	1	1	1	2	3	3	3	4	5	5	5	5	6	6	6	6	40			
45	1	1	2	2	3	3	3	4	5	6	6	6	6	7	7	7	7	45			
50	1	1	3	3	4	4	4	5	6	6	6	6	6	7	7	7	7	50			
55	1	1	3	3	4	4	4	5	6	6	6	6	6	7	7	7	7	55			
60	1	1	3	3	4	4	4	5	6	6	6	6	6	7	7	7	7	60			
65	1	1	2	3	4	5	5	6	6	7	7	7	7	8	8	8	8	65			
70	1	1	2	3	4	5	5	6	6	7	7	7	7	8	8	8	8	70			
75	1	1	2	3	4	5	5	6	6	7	7	7	7	8	8	8	8	75			
80	1	1	2	3	4	5	5	6	6	7	7	7	7	8	8	8	8	80			
85	1	1	2	3	4	5	5	6	6	7	7	7	7	8	8	8	8	85			
90	1	1	2	3	4	5	5	6	6	7	7	7	7	8	8	8	8	90			

Error arising from a deviation of one Minute in the parallelism of the surfaces of the central mirror of the circular instrument of reflection.									
(Observed Angle.	Observ. to the		Cross Obs.						
	Right	Left							
0	0. 00.	0. 0	0. 0						
5	0. 10.	0. 0	0. 1						
10	0. 20.	1. 0	0. 2						
15	0. 40.	2. 0	0. 3						
20	0. 60.	2. 0	0. 4						
25	0. 80.	1. 0	0. 5						
30	0. 100.	1. 0	0. 6						
35	0. 130.	0. 0	0. 7						
40	0. 160.	0. 0	0. 8						
45	0. 190.	0. 1	0. 9						
50	0. 230.	2. 0	1. 1						
55	0. 280.	4. 0	1. 2						
60	0. 330.	6. 0	1. 4						
65	0. 380.	8. 0	1. 6						
70	0. 470.	10. 0	1. 8						
75	0. 550.	13. 0	2. 1						
80	1. 40.	16. 0	2. 4						
85	1. 15.	19. 0	2. 8						
90	1. 28.	0. 23	0. 32						
95	1. 43.	0. 28	0. 37						
100	2. 10.	0. 33	0. 44						
105	2. 23.	0. 39	0. 52						
110	2. 50.	0. 46	1. 2						
115	3. 23.	0. 54	1. 15						
120	4. 41.	1. 41	1. 30						
125	4. 55.	1. 15	1. 50						
130	6. 15.	1. 28	2. 23						

Error of observation arising from an inclination of the line of collimation to the plane of the sextant, or to that of the circular instrument of reflection.														
Observed Angle.	Inclination of the line of Collimation.													
	10	20	30	36	42	48	54	1.0	1.6	1.12	1.18	1.24	1.30	
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	0.0	0.10	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	11.0	12.0	
20	0.0	0.10	3.0	4.0	5.0	7.0	9.0	11.0	13.0	16.0	19.0	22.0	25.0	
30	0.1	0.20	4.0	6.0	8.0	11.0	14.0	17.0	20.0	24.0	28.0	33.0	38.0	
36	0.1	0.20	5.0	7.0	10.0	13.0	17.0	20.0	25.0	29.0	35.0	40.0	46.0	
40	0.1	0.30	6.0	8.0	11.0	15.0	19.0	23.0	28.0	33.0	39.0	45.0	51.0	
44	0.1	0.30	7.0	9.0	12.0	16.0	21.0	25.0	31.0	37.0	43.0	50.0	57.0	
48	0.1	0.30	7.0	10.0	14.0	18.0	23.0	28.0	34.0	40.0	47.0	55.0	63.0	
52	0.1	0.30	8.0	11.0	15.0	20.0	25.0	31.0	37.0	44.0	52.0	61.0	71.0	
56	0.1	0.40	9.0	12.0	16.0	21.0	27.0	33.0	41.0	48.0	57.0	67.0	78.0	
60	0.1	0.40	9.0	13.0	18.0	23.0	29.0	36.0	44.0	52.0	61.0	71.0	82.0	
64	0.1	0.40	10.0	14.0	19.0	25.0	32.0	39.0	48.0	56.0	67.0	77.0	88.0	
68	0.1	0.40	11.0	15.0	21.0	27.0	34.0	43.0	52.0	61.0	71.0	81.0	92.0	
72	0.1	0.50	12.0	16.0	22.0	29.0	37.0	46.0	55.0	65.0	75.0	85.0	96.0	
76	0.2	0.50	13.0	18.0	24.0	31.0	40.0	49.0	59.0	69.0	79.0	89.0	100.0	
80	0.2	0.60	13.0	19.0	26.0	34.0	43.0	53.0	63.0	73.0	83.0	93.0	104.0	
84	0.2	0.60	14.0	20.0	28.0	36.0	46.0	57.0	67.0	77.0	87.0	97.0	108.0	
88	0.2	0.70	15.0	22.0	30.0	39.0	49.0	59.0	69.0	79.0	89.0	99.0	110.0	
92	0.2	0.70	17.0	23.0	32.0	42.0	53.0	63.0	73.0	83.0	93.0	103.0	114.0	
96	0.2	0.80	18.0	25.0	34.0	45.0	57.0	67.0	77.0	87.0	97.0	107.0	118.0	
100	0.2	0.80	19.0	27.0	37.0	48.0	59.0	69.0	79.0	89.0	99.0	109.0	120.0	
104	0.3	0.90	20.0	29.0	39.0	51.0	62.0	72.0	82.0	92.0	102.0	112.0	123.0	
108	0.3	0.10	22.0	31.0	42.0	55.0	66.0	76.0	86.0	96.0	106.0	116.0	127.0	
112	0.3	0.10	23.0	34.0	46.0	60.0	71.0	81.0	91.0	101.0	111.0	121.0	132.0	
116	0.3	0.11	25.0	36.0	49.0	64.0	75.0	85.0	95.0	105.0	115.0	125.0	136.0	
118	0.3	0.12	26.0	38.0	51.0	71.0	82.0	92.0	102.0	112.0	122.0	132.0	143.0	
120	0.3	0.12	27.0	39.0	53.0	74.0	84.0	94.0	104.0	114.0	124.0	134.0	145.0	

LOGARITHMIC DIFFERENCE.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to Seconds of Parallax. Subtractive.										Min. of Alt. being taken from	
	53'	54'	55'	56'	57'	58'	59'	60'	61'	Seconds of Parallax. Subtractive.												
										"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
0	10.000113	0112	0111	0110	0109	0108	0107	0106		0	0	0	0	0	0	0	0	0	0	0	0	Min.
10	0103	0102	0101	0100	0098	0097	0096	0094	0093	10	0	0	0	0	1	1	1	1	1	1	1	Subt.
20	0093	0091	0090	0088	0086	0085	0083	0081	0079	20	1	1	1	1	1	1	1	1	1	1	1	1'
30	0082	0080	0077	0075	0073	0071	0069	0067	0064	30	1	1	1	1	1	1	1	1	1	1	1	2'
40	0069	0067	0064	0062	0059	0056	0054	0051	0049	40	2	2	2	2	2	2	2	2	2	2	2	3'
50	0056	0053	0050	0047	0044	0041	0038	0035	0032	50	2	2	2	2	2	2	2	2	2	2	2	4'
1	10.000042	0039	0036	0032	0029	0025	0022	0018	0015	0	0	0	0	0	0	0	1	1	1	1	1	5'
10	0027	0024	0020	0016	0013	0008	0005	0001	9997	10	1	1	1	1	1	1	1	1	1	1	1	6'
20	0012	0008	0004	0000	9996	9991	9987	9983	9978	20	2	2	2	2	2	2	2	2	2	2	2	7'
30	9.999966	9992	9987	9983	9978	9974	9969	9964	9959	30	2	2	2	3	3	3	3	3	3	3	3	8'
40	9980	9975	9970	9965	9960	9955	9950	9945	9940	40	3	3	3	3	3	3	4	4	4	4	4	9'
50	9964	9958	9953	9948	9942	9937	9931	9925	9920	50	4	4	4	4	4	4	4	4	4	4	4	10'
2	9.999947	9941	9935	9929	9924	9918	9912	9906	9900	0	0	0	0	0	1	1	1	1	1	1	1	Subt.
10	9929	9923	9917	9911	9904	9898	9892	9886	9879	10	1	1	1	2	2	2	2	2	2	2	2	1'
20	9911	9905	9898	9892	9885	9878	9872	9865	9858	20	2	2	3	3	3	3	3	3	3	3	3	2'
30	9894	9887	9880	9873	9866	9859	9852	9845	9838	30	3	4	4	4	4	4	4	4	4	4	4	3'
40	9876	9868	9861	9853	9846	9838	9831	9824	9816	40	5	5	5	5	5	5	5	5	5	5	5	4'
50	9857	9850	9842	9834	9826	9818	9811	9803	9795	50	6	6	6	6	6	6	6	6	6	6	6	5'
3	9.999839	9831	9823	9815	9807	9799	9790	9782	9774	0	0	0	0	0	1	1	1	1	1	1	1	5'
10	9821	9812	9803	9795	9786	9778	9769	9761	9752	10	2	2	2	2	2	2	2	3	3	3	3	6'
20	9802	9793	9784	9775	9766	9757	9748	9739	9730	20	3	3	3	4	4	4	4	4	4	4	4	7'
30	9783	9774	9765	9755	9746	9736	9727	9718	9708	30	5	5	5	5	5	5	5	6	6	6	6	8'
40	9764	9755	9745	9735	9726	9716	9706	9696	9687	40	6	6	7	7	7	7	7	7	7	7	7	9'
50	9745	9735	9725	9715	9705	9695	9685	9675	9665	50	8	8	8	8	8	9	9	9	9	9	9	10'
4	9.999727	9716	9706	9695	9685	9675	9664	9653	9643	0	0	0	0	1	1	1	1	1	1	1	1	Subt.
10	9707	9697	9686	9675	9664	9653	9642	9631	9621	10	2	2	2	3	3	3	3	3	3	3	3	1'
20	9688	9677	9666	9654	9643	9633	9621	9610	9599	20	4	4	4	4	5	5	5	5	5	5	5	2'
30	9669	9658	9646	9634	9623	9611	9600	9588	9576	30	6	6	6	6	7	7	7	7	7	7	7	3'
40	9650	9638	9626	9614	9602	9590	9578	9566	9554	40	8	8	8	8	9	9	9	9	9	9	9	4'
50	9631	9618	9606	9594	9581	9569	9556	9544	9532	50	10	10	10	10	10	11	11	11	11	11	11	5'
5	9.999612	9599	9587	9574	9561	9549	9536	9523	9510	0	0	0	0	1	1	1	1	2	2	2	2	6'
10	9593	9579	9566	9553	9540	9527	9514	9501	9488	10	2	3	3	3	3	3	4	4	4	4	4	7'
20	9573	9560	9546	9533	9519	9506	9492	9479	9465	20	5	5	5	5	6	6	6	6	6	6	6	8'
30	9554	9540	9526	9512	9498	9485	9471	9457	9443	30	7	7	7	8	8	8	8	8	8	8	8	9'
40	9535	9520	9506	9492	9478	9463	9449	9435	9421	40	9	9	10	10	10	10	11	11	11	11	11	10'
50	9515	9501	9486	9471	9457	9442	9427	9413	9398	50	12	12	12	12	12	13	13	13	13	13	13	11'
6	9.999496	9481	9466	9451	9437	9422	9407	9392	9376	0	0	0	1	1	1	1	2	2	2	2	2	Subt.
10	9476	9461	9446	9430	9415	9400	9384	9369	9354	10	3	3	3	3	4	4	4	4	4	4	4	1'
20	9457	9441	9426	9410	9394	9379	9363	9347	9331	20	5	6	6	6	6	7	7	7	7	7	7	2'
30	9437	9421	9405	9389	9373	9357	9341	9325	9309	30	8	8	9	9	9	9	10	10	10	10	10	3'
40	9418	9402	9385	9369	9352	9336	9319	9303	9286	40	11	11	11	11	12	12	12	13	13	13	13	4'
50	9399	9382	9365	9348	9331	9315	9298	9281	9264	50	13	14	14	14	14	15	15	15	15	15	15	5'
7	9.999380	9363	9345	9328	9311	9294	9277	9259	9242	0	0	0	1	1	1	2	2	2	2	2	2	6'
10	9360	9343	9325	9308	9290	9272	9255	9237	9219	10	3	3	4	4	4	5	5	5	5	5	5	7'
20	9341	9323	9305	9287	9269	9251	9233	9215	9197	20	6	6	7	7	7	8	8	8	8	8	8	8'
30	9321	9303	9285	9266	9248	9230	9211	9193	9175	30	9	9	10	10	10	11	11	11	12	12	12	9'
40	9302	9283	9265	9246	9227	9209	9190	9171	9152	40	12	12	13	13	13	13	14	14	14	14	14	10'
50	9283	9264	9245	9226	9207	9188	9169	9149	9130	50	15	15	16	16	16	17	17	17	18	18	18	11'
8	9.999264	9244	9225	9206	9186	9167	9147	9128	9108	0	0	0	1	1	1	2	2	2	2	3	3	Subt.
10	9245	9224	9205	9186	9165	9146	9126	9106	9086	10	3	4	4	4	5	5	5	6	6	6	6	1'
20	9225	9205	9185	9165	9145	9125	9104	9084	9064	20	7	7	7	8	8	8	9	9	9	10	10	2'
30	9206	9185	9165	9145	9124	9104	9083	9063	9042	30	10	11	11	11	12	12	12	13	13	13	13	3'
40	9187	9165	9145	9124	9103	9082	9061	9041	9021	40	14	14	14	15	15	15	16	16	16	17	17	4'
50	9167	9146	9125	9104	9083	9061	9040	9019	8997	50	17	17	18	18	18	19	19	19	20	20	20	5'
9	9.999148	9126	9105	9083	9062	9040	9018	8997	8975	0	0	0	1	1	2	2	2	3	3	3	3	6'
10	9129	9107	9085	9063	9041	9019	8997	8975	8953	10	4	4	4	5	5	6	6	6	7	7	7	7'
20	9109	9087	9065	9042	9020	8998	8975	8953	8931	20	8	8	8	9	9	9	10	10	11	11	11	8'
30	9090	9068	9045	9022	9000	8977	8954	8932	8909	30	11	12	12	12	13	13	14	14	14	14	14	9'
40	9071	9048	9025	9002	8979	8956	8933	8910	8886	40	15	15	16	16	17	17	17	18	18	18	18	10'
50	9051	9028	9005	8981	8958	8935	8911	8888	8864	50	19	19	20	20	20	21	21	21	22	22	22	11'
Moon's App. Alt.	53'	54'	55'	56'	57'	58'	59'	60'	61'	"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Min.	
Moon's Horizontal Parallax.											Seconds of Parallax. Subtractive.										of Alt. being taken from	
Proportional parts to																						

LOGARITHMIC DIFFERENCE.

Moon's App. Alt.	Moon's Horizontal Parallax.										Proportional parts to Seconds of Parallax. Subtractive.										* of Alt. being Subt.	
	53	54	55	56	57	58	59	60	61		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Min.	Sec.
	9.997902	7857	7812	7767	7722	7677	7632	7586	7541	0	0	1	2	3	4	5	6	7	8	9	1'	2'
20	7884	7838	7793	7747	7702	7656	7611	7565	7519	10	8	8	9	10	11	12	13	14	15		Subt.	
30	7866	7820	7774	7728	7682	7636	7590	7544	7498	20	15	16	17	18	19	20	21	22	23	1'	2'	
40	7847	7801	7755	7709	7662	7616	7570	7524	7477	30	23	24	25	26	27	28	29	30	31	2	4	
50	7829	7783	7736	7689	7643	7596	7549	7503	7456	40	31	32	33	34	35	36	37	38	39	3	6	
	7811	7764	7717	7670	7623	7576	7529	7482	7435	50	39	39	40	41	42	43	44	45	46	4	7	
21	9.997793	7745	7698	7651	7604	7556	7509	7462	7414	0	0	1	2	3	4	5	6	7	8	5	9	
10	7774	7727	7679	7632	7584	7536	7489	7441	7393	10	8	9	10	11	12	13	14	15	16	6	10	
20	7756	7708	7660	7612	7564	7516	7468	7420	7372	20	16	17	18	18	19	20	21	22	23	7	11	
30	7738	7690	7641	7593	7545	7496	7448	7400	7352	30	24	25	26	26	27	28	29	30	31	8	12	
40	7720	7671	7623	7574	7525	7477	7428	7379	7331	40	32	33	34	34	35	36	37	38	39	9	13	
50	7702	7653	7604	7555	7506	7457	7408	7359	7310	50	40	41	42	42	43	44	45	46	47	10	14	
22	9.997684	7635	7586	7537	7487	7438	7388	7339	7290	0	0	1	2	3	4	5	6	7	8	5	9	
10	7666	7616	7566	7517	7467	7417	7368	7318	7268	10	8	9	10	11	12	13	14	15	16	6	10	
20	7648	7598	7548	7498	7447	7397	7347	7297	7247	20	17	18	18	19	20	21	22	23	24	7	11	
30	7630	7579	7529	7479	7428	7378	7327	7277	7227	30	25	26	27	28	29	30	31	32	33	8	12	
40	7612	7561	7510	7459	7409	7358	7307	7257	7206	40	33	34	35	36	37	38	39	40	41	9	13	
50	7594	7543	7492	7440	7389	7338	7287	7236	7185	50	42	43	44	44	45	46	47	48	49	10	14	
23	9.997576	7524	7473	7421	7370	7319	7267	7216	7164	0	0	1	2	3	4	5	6	7	8	5	9	
10	7558	7506	7454	7402	7351	7299	7247	7196	7144	10	9	10	10	11	12	13	14	15	16	6	10	
20	7540	7488	7436	7384	7331	7279	7227	7175	7123	20	17	18	19	20	21	22	23	24	25	7	11	
30	7522	7469	7417	7365	7312	7260	7207	7155	7103	30	26	27	28	29	30	31	32	33	34	8	12	
40	7504	7451	7399	7346	7293	7240	7188	7135	7082	40	35	36	37	37	38	39	40	41	42	9	13	
50	7486	7433	7380	7327	7274	7221	7168	7115	7062	50	44	44	45	46	47	48	49	50	51	10	14	
24	9.997468	7415	7362	7309	7255	7202	7148	7095	7042	0	0	1	2	3	4	5	6	7	8	5	9	
10	7451	7397	7343	7289	7235	7182	7128	7074	7021	10	9	10	11	12	13	14	15	16	17	6	10	
20	7433	7379	7325	7271	7216	7162	7108	7054	7000	20	18	19	20	21	22	23	24	25	26	7	11	
30	7415	7361	7306	7252	7197	7143	7088	7034	6980	30	27	28	29	30	31	32	33	34	35	8	12	
40	7397	7342	7288	7233	7178	7123	7069	7014	6959	40	36	37	38	39	40	41	42	43	44	9	13	
50	7380	7324	7269	7214	7159	7104	7049	6994	6939	50	45	46	47	48	49	50	51	52	53	10	14	
25	9.997362	7307	7251	7196	7140	7085	7029	6974	6918	0	0	1	2	3	4	5	6	7	8	5	9	
10	7344	7289	7233	7177	7121	7066	7010	6954	6898	10	9	10	11	12	13	14	15	16	17	6	10	
20	7327	7271	7215	7158	7102	7046	6990	6934	6878	20	19	20	21	22	23	24	25	26	27	7	11	
30	7309	7253	7196	7140	7083	7027	6971	6914	6858	30	28	29	30	31	32	33	34	35	36	8	12	
40	7291	7235	7178	7121	7064	7008	6951	6894	6837	40	38	39	40	41	42	43	44	45	46	9	13	
50	7274	7217	7160	7103	7045	6988	6931	6874	6817	50	47	48	49	50	51	52	53	54	55	10	14	
26	9.997256	7199	7142	7084	7027	6970	6913	6855	6798	0	0	1	2	3	4	5	6	7	8	5	9	
10	7239	7181	7123	7065	7008	6950	6893	6834	6777	10	10	11	12	13	14	15	16	17	18	6	10	
20	7221	7163	7105	7047	6989	6931	6873	6815	6757	20	19	20	21	22	23	24	25	26	27	7	11	
30	7204	7145	7087	7029	6970	6912	6853	6795	6737	30	29	30	31	32	33	34	35	36	37	8	12	
40	7186	7128	7069	7010	6951	6893	6834	6775	6716	40	39	40	41	42	43	44	45	46	47	9	13	
50	7169	7110	7051	6992	6933	6874	6815	6755	6696	50	49	50	51	52	53	54	55	56	57	10	14	
27	9.997152	7092	7033	6973	6914	6855	6795	6736	6676	0	0	1	2	3	4	5	6	7	8	5	9	
10	7134	7074	7015	6955	6895	6836	6776	6716	6656	10	10	11	12	13	14	15	16	17	18	6	10	
20	7117	7057	6997	6937	6877	6817	6757	6697	6637	20	20	21	22	23	24	25	26	27	28	7	11	
30	7100	7039	6979	6918	6858	6798	6737	6677	6617	30	30	31	32	33	34	35	36	37	38	8	12	
40	7082	7022	6961	6900	6839	6779	6718	6657	6597	40	40	41	42	43	44	45	46	47	48	9	13	
50	7065	7004	6943	6882	6821	6760	6699	6638	6577	50	50	51	52	53	54	55	56	57	58	10	14	
28	9.997048	6987	6926	6864	6803	6742	6680	6619	6557	0	0	1	2	3	4	5	6	7	8	5	9	
10	7031	6969	6907	6846	6784	6722	6661	6599	6537	10	10	11	12	13	14	15	16	17	18	6	10	
20	7014	6952	6890	6828	6766	6704	6642	6580	6518	20	21	22	23	24	25	26	27	28	29	7	11	
30	6997	6934	6872	6810	6747	6685	6623	6560	6498	30	31	32	33	34	35	36	37	38	39	8	12	
40	6979	6917	6854	6792	6729	6666	6604	6541	6478	40	42	43	44	45	46	47	48	49	50	9	13	
50	6962	6899	6836	6773	6710	6648	6585	6522	6459	50	52	53	54	55	56	57	58	59	60	10	14	
29	9.996945	6882	6819	6755	6692	6629	6566	6502	6439	0	0	1	2	3	4	5	6	7	8	5	9	
10	6928	6865	6801	6737	6674	6610	6547	6483	6419	10	11	12	13	14	15	16	17	18	19	6	10	
20	6911	6847	6783	6719	6656	6592	6528	6464	6400	20	21	22	24	25	26	27	28	29	30	7	11	
30	6894	6830	6766	6701	6637	6573	6509	6444	6380	30	32	33	34	35	36	37	39	40	41	8	12	
40	6877	6813	6748	6684	6619	6554	6490	6425	6361	40	43	44	45	46	47	48	49	50	51	9	13	
50	6860	6795	6731	6666	6601	6536	6471	6406	6341	50	54	55	56	57	58	59	60	61	62	10	14	
Moon's App. Alt.	Moon's Horizontal Parallax.										Seconds of Parallax. Subtractive.										* of Alt. being Subt.	
	53	54	55	56	57	58	59	60	61		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Min.	Sec.
	9.997902	7857	7812	7767	7722	7677	7632	7586	7541	0	0	1	2	3	4	5	6	7	8	9	1'	2'

LOGARITHMIC DIFFERENCE.

Moon's Horizontal Parallax.										Proportional parts to										of Alt. Par. being between			
										Seconds of Parallax. Subtractive.													
53	54	55	56	57	58	59	60	61		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Min.	53' & 56"	56' & 59"	59' & 62"
996844	6779	6713	6648	6583	6518	6453	6387	6322	0	0	1	2	3	4	5	6	7	8	9	10			
6827	6761	6696	6630	6564	6499	6433	6368	6302	10	11	12	13	14	15	16	17	18	19	20	21	1'	2	3
6810	6744	6678	6613	6545	6480	6415	6349	6283	20	22	23	24	25	26	27	28	29	30	31	32	2	3	4
6793	6727	6661	6594	6528	6462	6396	6330	6264	30	33	34	35	36	37	38	39	40	41	42	43	3	4	5
6776	6710	6643	6577	6510	6444	6377	6311	6244	40	44	45	46	47	48	49	50	51	52	53	54	4	5	6
6759	6693	6626	6559	6492	6426	6359	6292	6225	50	55	56	57	58	59	60	61	62	63	64	65	5	6	7
996743	6676	6609	6541	6474	6407	6340	6273	6206	0	0	1	2	3	4	5	6	7	8	9	10	5	6	7
6726	6659	6591	6524	6456	6389	6322	6254	6187	10	11	12	13	14	15	16	17	18	19	20	21	6	7	8
6710	6642	6574	6506	6439	6371	6303	6235	6167	20	23	24	25	26	27	28	29	30	31	32	33	7	8	9
6693	6625	6557	6489	6421	6352	6284	6216	6148	30	34	35	36	37	38	39	40	41	42	43	44	8	9	10
6676	6608	6539	6471	6403	6334	6266	6198	6129	40	45	46	47	48	49	50	51	52	53	54	55	9	10	11
6660	6591	6522	6454	6385	6316	6248	6179	6110	50	57	58	59	60	61	62	63	64	65	66	67	10	11	12
996643	6574	6505	6436	6367	6298	6229	6160	6091	0	0	1	2	3	4	5	6	7	8	9	10	5	6	7
6627	6557	6488	6419	6349	6280	6211	6141	6072	10	12	13	14	15	16	17	18	19	20	21	22	6	7	8
6610	6540	6471	6401	6332	6262	6192	6123	6053	20	23	25	26	27	28	29	30	32	33	34	35	7	8	9
6594	6524	6454	6384	6314	6244	6174	6104	6034	30	35	36	37	38	39	40	41	42	43	44	45	8	9	10
6577	6507	6437	6366	6296	6226	6156	6085	6015	40	47	48	49	50	51	52	53	54	55	56	57	9	10	11
6561	6490	6420	6349	6279	6208	6138	6067	5996	50	59	60	61	62	63	64	65	66	67	68	69	10	11	12
996544	6474	6403	6332	6261	6190	6119	6048	5978	0	0	1	2	3	4	5	6	7	8	9	10	5	6	7
6528	6457	6386	6315	6243	6172	6101	6030	5959	10	12	13	14	15	16	17	18	19	20	21	22	6	7	8
6512	6440	6369	6297	6226	6154	6083	6011	5940	20	24	25	26	27	28	29	30	31	32	33	34	7	8	9
6496	6424	6352	6280	6208	6137	6065	5993	5921	30	36	37	38	39	40	41	42	43	44	45	46	8	9	10
6479	6407	6335	6263	6191	6119	6047	5975	5903	40	48	49	50	51	52	53	54	55	56	57	58	9	10	11
6463	6391	6318	6246	6174	6101	6029	5956	5884	50	60	61	62	63	64	65	66	67	68	69	70	10	11	12
996447	6374	6302	6229	6156	6084	6011	5938	5866	0	0	1	2	3	4	5	6	7	8	9	10	5	6	7
6431	6358	6285	6212	6139	6066	5993	5920	5847	10	12	13	14	15	16	17	18	19	20	21	22	6	7	8
6415	6342	6268	6195	6122	6048	5975	5902	5828	20	25	26	27	28	29	30	31	32	33	34	35	7	8	9
6399	6325	6252	6178	6104	6031	5957	5884	5810	30	37	38	39	40	41	42	43	44	45	46	47	8	9	10
6383	6309	6235	6161	6087	6013	5939	5865	5791	40	49	50	51	52	53	54	55	56	57	58	59	9	10	11
6367	6293	6218	6144	6070	5996	5921	5847	5773	50	61	62	63	64	65	66	67	68	69	70	71	10	11	12
996351	6276	6202	6127	6053	5978	5904	5829	5755	0	0	1	2	3	4	5	6	7	8	9	10	5	6	7
6335	6260	6185	6110	6036	5961	5886	5811	5736	10	13	14	15	16	17	18	19	20	21	22	23	6	7	8
6319	6244	6169	6094	6018	5943	5868	5793	5718	20	25	26	27	28	29	30	31	32	33	34	35	7	8	9
6303	6228	6152	6077	6001	5926	5850	5775	5700	30	38	39	40	41	42	43	44	45	46	47	48	8	9	10
6287	6212	6136	6060	5984	5909	5833	5757	5681	40	50	51	52	53	54	55	56	57	58	59	60	9	10	11
6271	6195	6119	6043	5967	5891	5815	5739	5663	50	63	64	65	66	67	68	69	70	71	72	73	10	11	12
996256	6179	6103	6027	5950	5874	5798	5721	5645	0	0	1	2	3	4	5	6	7	8	9	10	5	6	7
6240	6163	6087	6010	5933	5857	5780	5704	5627	10	13	14	15	16	17	18	19	20	21	22	23	6	7	8
6224	6147	6070	5993	5917	5840	5763	5686	5609	20	26	27	28	30	31	32	33	34	35	36	37	7	8	9
6209	6131	6054	5977	5900	5822	5745	5668	5591	30	39	40	41	42	43	44	45	46	47	48	49	8	9	10
6193	6115	6038	5960	5883	5805	5728	5650	5573	40	52	53	54	55	56	57	58	59	60	61	62	9	10	11
6177	6099	6022	5944	5866	5788	5710	5633	5555	50	65	66	67	68	69	70	71	72	73	74	75	10	11	12
996162	6084	6005	5927	5849	5771	5693	5615	5537	0	0	1	2	3	4	5	6	7	8	9	10	5	6	7
6146	6068	5989	5911	5833	5754	5676	5597	5519	10	13	14	15	16	17	18	19	20	21	22	23	6	7	8
6131	6052	5973	5895	5816	5737	5659	5580	5501	20	26	27	28	29	30	31	32	33	34	35	36	7	8	9
6115	6036	5957	5878	5799	5720	5641	5562	5483	30	39	40	41	42	43	44	45	46	47	48	49	8	9	10
6100	6021	5941	5862	5783	5703	5624	5545	5466	40	52	53	54	55	56	57	58	59	60	61	62	9	10	11
6084	6005	5925	5846	5766	5687	5607	5528	5448	50	66	67	68	69	70	71	72	73	74	75	76	10	11	12
996069	5989	5909	5829	5750	5670	5590	5510	5430	0	0	1	2	3	4	5	6	7	8	9	10	5	6	7
6054	5973	5893	5813	5733	5653	5573	5493	5413	10	13	14	15	16	17	19	20	21	22	23	24	6	7	8
6038	5958	5877	5797	5717	5636	5556	5475	5395	20	27	28	29	31	32	33	35	36	37	39	40	7	8	9
6023	5942	5862	5781	5700	5619	5539	5458	5377	30	40	42	43	44	46	47	48	50	51	52	53	8	9	10
6008	5927	5846	5765	5684	5603	5522	5441	5359	40	54	55	56	58	59	60	62	63	64	66	67	9	10	11
5992	5911	5830	5749	5667	5586	5505	5423	5342	50	67	68	69	70	71	72	74	75	76	78	79	10	11	12
995977	5896	5814	5733	5651	5569	5488	5406	5325	0	0	1	2	3	4	5	6	7	8	9	10	5	6	7
5962	5880	5798	5716	5635	5553	5471	5389	5307	10	14	15	16	18	19	21	22	23	25	26	27	6	7	8
5947	5865	5783	5701	5618	5536	5454	5372	5290	20	27	29	30	32	33	34	36	37	38	40	41	7	8	9
5932	5849	5767	5685	5602	5520	5437	5355	5273	30	41	42	44	45	47	48	49	51	52	53	54	8	9	10
5917	5834	5751	5669	5586	5503	5421	5338	5255	40	55	56	58	59	60	62	63	64	66	67	68	9	10	11
5902	5819	5736	5654	5570	5487	5404	5321	5238	50	69	70	71	73	74	76	77	7						

LOGARITHMIC DIFFERENCE.

Moon's Horizontal Parallax.										Proportional parts to										7's of Alt. Par. being between		
										Seconds of Parallax.					Subtractive.							
53	54	55	56	57	58	59	60	61	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Min.	53 & 56	56 & 59	59 & 62
9.995061	4962	4863	4764	4665	4567	4468	4369	4270	0	0	2	3	5	7	8	10	12	13	15			
5048	4949	4850	4751	4652	4553	4454	4355	4256	10	17	18	20	22	23	25	27	28	30	32	Subt.		
5036	4937	4838	4739	4640	4541	4442	4343	4244	20	33	35	37	38	40	42	43	45	46	48	1'	1	1
5024	4924	4824	4725	4625	4526	4426	4326	4227	30	50	51	53	55	56	58	60	61	63	65	2	2	3
5011	4911	4812	4712	4612	4512	4412	4312	4213	40	66	68	70	71	73	75	76	78	80	81	3	4	4
4999	4899	4799	4699	4599	4499	4399	4299	4198	50	83	85	86	88	90	91	93	95	96	98	4	5	5
9.994987	4886	4786	4686	4586	4485	4385	4285	4184	0	0	2	3	5	7	8	10	12	13	15	5	6	7
4975	4874	4773	4673	4572	4472	4371	4271	4170	10	17	18	20	22	24	25	27	29	30	32	6	7	8
4962	4862	4761	4660	4559	4459	4358	4257	4156	20	34	35	37	39	40	42	44	45	47	49	7	9	9
4950	4849	4748	4647	4546	4445	4344	4243	4142	30	50	52	54	55	57	59	60	62	64	66	8	10	11
4938	4837	4736	4634	4533	4432	4331	4230	4129	40	67	69	71	72	74	76	77	79	81	82	9	11	12
4926	4825	4723	4622	4520	4419	4318	4216	4115	50	84	86	87	89	91	92	94	96	97	99			
9.994914	4812	4711	4609	4507	4406	4304	4203	4101	0	0	2	3	5	7	9	10	12	14	15	Subt.		
4800	4698	4596	4495	4393	4291	4189	4087		10	17	19	20	22	24	26	27	29	31	32			
4789	4687	4584	4482	4380	4278	4176	4074		20	34	36	37	39	41	43	44	46	48	49	1'	1	1
4778	4676	4573	4471	4369	4267	4165	4063		30	51	53	54	56	58	60	61	63	65	66	2	2	3
4766	4664	4561	4459	4356	4254	4152	4050		40	68	70	71	73	75	77	78	80	82	83	3	4	4
4754	4652	4549	4446	4343	4241	4139	4037		50	85	87	88	90	92	94	95	97	99	100	4	5	5
9.994843	4740	4637	4534	4431	4328	4225	4122	4019	0	0	2	3	5	7	9	10	12	14	15	5	6	7
4728	4625	4521	4418	4315	4212	4109	4006		10	17	19	21	22	24	26	28	29	31	33	6	7	8
4716	4612	4509	4406	4302	4199	4096	3992		20	35	36	38	40	41	43	45	47	48	50	7	8	9
4704	4600	4497	4393	4290	4186	4083	3979		30	52	54	55	57	59	60	62	64	66	67	8	10	11
4692	4588	4485	4381	4277	4173	4069	3966		40	69	71	73	74	76	78	79	81	83	85	9	11	12
4680	4576	4472	4368	4264	4160	4056	3952		50	86	88	90	92	93	95	97	98	100	102			
9.994773	4669	4564	4460	4356	4252	4148	4043	3939	0	0	2	3	5	7	9	10	12	14	16	Subt.		
4702	4597	4493	4389	4284	4180	4075	3970		10	17	19	21	23	24	26	28	30	31	33			
4750	4645	4541	4436	4332	4227	4122	4018	3913	20	35	37	38	40	42	44	45	47	49	51	1'	1	1
4739	4634	4529	4424	4319	4214	4110	4005	3900	30	52	54	56	58	59	61	63	65	66	68	2	2	3
4728	4622	4517	4412	4307	4202	4097	3992	3887	40	70	72	73	75	77	79	80	82	84	86	3	3	4
4716	4611	4506	4400	4295	4190	4084	3979	3874	50	87	89	91	93	94	96	98	100	101	103	4	5	5
9.994705	4600	4494	4389	4283	4178	4072	3967	3861	0	0	2	4	5	7	9	11	12	14	16	5	6	6
4694	4588	4483	4377	4271	4165	4060	3954	3848	10	18	19	21	23	25	27	28	30	32	34	6	7	8
4683	4577	4471	4365	4259	4153	4047	3941	3835	20	35	37	39	41	42	44	46	48	50	51	7	8	9
4672	4566	4460	4353	4247	4141	4035	3929	3823	30	53	55	57	58	60	62	64	65	67	69	8	9	10
4661	4555	4448	4342	4235	4129	4023	3916	3810	40	71	73	74	76	78	80	81	83	85	87	9	10	11
4650	4543	4437	4330	4224	4117	4011	3904	3797	50	89	90	92	94	96	97	99	101	103	104			
9.994639	4532	4426	4319	4212	4105	3998	3891	3785	0	0	2	4	5	7	9	11	13	14	16	Subt.		
4628	4521	4414	4307	4200	4093	3986	3879	3772	10	18	20	21	23	25	27	29	30	32	34			
4617	4510	4403	4296	4189	4081	3974	3867	3760	20	36	38	39	41	43	45	47	48	50	52	1'	1	1
4607	4499	4392	4284	4177	4070	3962	3855	3747	30	54	55	57	59	61	63	64	66	68	70	2	2	2
4596	4488	4381	4273	4166	4058	3950	3843	3735	40	72	73	75	77	79	81	82	84	86	88	3	3	4
4585	4477	4370	4262	4154	4046	3938	3831	3723	50	90	91	93	95	97	99	100	102	104	106	4	4	5
9.994575	4467	4359	4251	4143	4035	3926	3818	3710	0	0	2	4	5	7	9	11	13	14	16	5	5	6
4504	4450	4348	4239	4131	4023	3915	3806	3698	10	18	20	22	24	25	27	29	31	33	34	6	6	7
4553	4445	4337	4228	4120	4011	3903	3794	3686	20	36	38	40	42	43	45	47	49	51	52	7	8	9
4543	4434	4326	4217	4108	4000	3891	3783	3674	30	54	56	58	60	62	63	65	67	69	71	8	9	10
4532	4424	4315	4206	4097	3988	3879	3771	3662	40	72	74	76	78	80	81	83	85	87	89	9	10	11
4522	4413	4304	4195	4086	3977	3868	3759	3650	50	91	92	94	96	98	100	101	103	105	107			
9.994512	4403	4293	4184	4075	3966	3856	3747	3638	0	0	2	4	5	7	9	11	13	15	16	Subt.		
4501	4392	4283	4173	4064	3954	3845	3736	3626	10	18	20	22	24	26	27	29	31	33	35			
4491	4381	4272	4162	4053	3943	3834	3724	3614	20	37	38	40	42	44	46	48	49	51	53	1'	1	1
4481	4371	4261	4152	4042	3932	3822	3712	3603	30	55	57	59	60	62	64	66	68	70	71	2	2	2
4471	4361	4251	4141	4031	3921	3811	3701	3591	40	73	75	77	79	81	82	84	86	88	90	3	3	3
4461	4351	4240	4130	4020	3910	3800	3690	3580	50	92	93	95	97	99	101	102	104	106	108	4	4	4
9.994451	4340	4230	4120	4009	3899	3788	3678	3568	0	0	2	4	6	7	9	11	13	15	17	5	5	6
4441	4330	4220	4109	3998	3888	3777	3667	3556	10	19	20	22	24	26	28	30	31	33	35	6	6	7
4431	4320	4209	4098	3988	3877	3766	3655	3545	20	37	39	41	43	44	46	48	50	52	54	7	8	8
4421	4310	4199	4088	3977	3866	3755	3644	3533	30	56	57	59	61	63	65	67	68	70	72	8	8	9
4411	4300	4189	4078	3966	3855	3744	3633	3522	40	74	76	78	80	81	83	85	87	89	91	9	9	10
4401	4290	4179	4067	3956	3845	3733	3622	3511	50	93	94	96	98	100	102	104	105	107	109			
53	54	55	56	57	58	59	60	61	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Min.	53 & 56	56 & 59	59 & 62
Moon's Horizontal Parallax.										Seconds of Parallax. Subtractive.										7's of Alt. Par. being between		
										Proportional parts to												

LOGARITHMIC DIFFERENCE.

Moon's App. Alt.	Moon's Horizontal Parallax.											Proportional parts to Seconds of Parallax. Subtractive.											Min. of circles
	53'	54'	55'	56'	57'	58'	59'	60'	61'			0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
60	9.994391	4280	4168	4057	3945	3834	3722	3611	3500	0	0	0	2	4	6	7	9	11	13	15	17		
10	4382	4270	4158	4047	3935	3823	3711	3600	3488	10	19	21	23	25	26	28	30	32	34	35			
20	4372	4260	4148	4036	3924	3813	3701	3589	3477	20	37	39	41	43	45	47	49	50	52	54	1'		
30	4362	4250	4138	4026	3914	3802	3690	3578	3466	30	56	58	60	62	63	65	67	69	71	73	2		
40	4353	4241	4128	4016	3904	3792	3679	3567	3455	40	75	77	78	80	82	84	86	88	90	91	3		
50	4343	4231	4118	4006	3894	3781	3669	3556	3444	50	93	95	97	99	101	103	104	106	108	110	4		
61	9.994334	4221	4109	3996	3883	3771	3658	3546	3433	0	0	2	4	6	8	9	11	13	15	17	5		
10	4324	4212	4099	3986	3873	3761	3648	3535	3422	10	19	21	23	25	26	28	30	32	34	36	6		
20	4315	4202	4089	3976	3863	3750	3637	3524	3411	20	38	40	41	43	45	47	49	51	53	55	7		
30	4306	4193	4079	3966	3853	3740	3627	3514	3401	30	57	58	60	62	64	66	68	70	72	74	8		
40	4296	4183	4070	3957	3843	3730	3617	3503	3390	40	75	77	79	81	83	85	87	89	90	92	9		
50	4287	4174	4060	3947	3833	3720	3606	3493	3379	50	94	96	98	100	102	104	106	107	109	111			
62	9.994278	4164	4051	3937	3824	3710	3596	3483	3369	0	0	2	4	6	8	10	11	13	15	17			
10	4269	4155	4041	3928	3814	3700	3586	3472	3358	10	19	21	23	25	27	29	30	32	34	36			
20	4260	4146	4032	3918	3804	3690	3576	3462	3348	20	38	40	42	44	46	48	49	51	53	55	1'		
30	4251	4137	4022	3908	3794	3680	3566	3452	3338	30	57	59	61	63	65	67	68	70	72	74	2		
40	4242	4127	4013	3899	3785	3670	3556	3442	3327	40	76	78	80	82	84	86	87	89	91	93	3		
50	4233	4118	4004	3889	3775	3660	3546	3431	3317	50	95	97	99	101	103	105	106	108	110	112	4		
63	9.994224	4109	3995	3880	3765	3651	3536	3421	3307	0	0	2	4	6	8	10	12	13	15	17	5		
10	4215	4100	3986	3871	3756	3641	3526	3411	3297	10	19	21	23	25	27	29	31	33	35	36	6		
20	4206	4091	3976	3861	3746	3631	3516	3401	3286	20	38	40	42	44	46	48	50	52	54	56	7		
30	4198	4083	3967	3852	3737	3622	3507	3392	3276	30	58	60	61	63	65	67	69	71	73	75	8		
40	4189	4074	3958	3843	3728	3612	3497	3382	3267	40	77	79	81	83	84	86	88	90	92	94	9		
50	4180	4065	3950	3834	3719	3603	3488	3372	3257	50	96	98	100	102	104	106	108	109	111	113			
64	9.994172	4056	3941	3825	3709	3594	3478	3362	3247	0	0	2	4	6	8	10	12	14	15	17			
10	4163	4048	3932	3816	3700	3584	3468	3353	3237	10	19	21	23	25	27	29	31	33	35	37			
20	4155	4039	3923	3807	3691	3575	3459	3343	3227	20	39	41	43	45	46	48	50	52	54	56	1'		
30	4146	4030	3914	3798	3682	3566	3450	3334	3217	30	58	60	62	64	66	68	70	72	74	75	2		
40	4138	4022	3906	3789	3673	3557	3440	3324	3208	40	77	79	81	83	85	87	89	91	93	95	3		
50	4130	4013	3897	3781	3664	3548	3431	3315	3198	50	97	99	101	103	104	106	108	110	112	114	4		
65	9.994122	4005	3888	3772	3655	3539	3422	3305	3189	0	0	2	4	6	8	10	12	14	16	18	5		
10	4113	3997	3880	3763	3646	3530	3413	3296	3179	10	20	21	23	25	27	29	31	33	35	37	6		
20	4105	3988	3871	3755	3638	3521	3404	3287	3170	20	39	41	43	45	47	49	51	53	55	57	7		
30	4097	3980	3863	3746	3629	3512	3395	3278	3161	30	59	60	62	64	66	68	70	72	74	76	8		
40	4089	3972	3855	3737	3620	3503	3386	3269	3151	40	78	80	82	84	86	88	90	92	94	96	9		
50	4081	3964	3846	3729	3612	3494	3377	3260	3142	50	97	99	101	103	105	107	109	111	113	115			
66	9.994073	3956	3838	3721	3603	3486	3368	3251	3133	0	0	2	4	6	8	10	12	14	16	18			
10	4065	3948	3830	3712	3595	3477	3359	3242	3124	10	20	22	24	26	27	29	31	33	35	37			
20	4057	3939	3822	3704	3586	3468	3350	3233	3115	20	39	41	43	45	47	49	51	53	55	57	1'		
30	4049	3931	3814	3696	3578	3460	3342	3224	3106	30	59	61	63	65	67	69	71	73	75	77	2		
40	4042	3924	3806	3687	3569	3451	3333	3215	3097	40	79	81	82	84	86	88	90	92	94	96	3		
50	4034	3916	3798	3679	3561	3443	3325	3206	3088	50	98	100	102	104	106	108	110	112	114	116	4		
67	9.994027	3908	3790	3671	3553	3435	3316	3198	3079	0	0	2	4	6	8	10	12	14	16	18	5		
10	4019	3900	3782	3663	3545	3426	3308	3189	3071	10	20	22	24	26	28	30	32	34	36	38	6		
20	4011	3893	3774	3655	3537	3418	3299	3181	3062	20	40	42	44	46	48	50	51	53	55	57	7		
30	4004	3885	3766	3647	3529	3410	3291	3172	3053	30	59	61	63	65	67	69	71	73	75	77	8		
40	3997	3878	3759	3640	3521	3402	3283	3164	3045	40	79	81	83	85	87	89	91	93	95	97	9		
50	3989	3870	3751	3632	3513	3394	3275	3155	3036	50	99	101	103	105	107	109	111	113	115	117			
68	9.993982	3863	3743	3624	3505	3386	3266	3147	3028	0	0	2	4	6	8	10	12	14	16	18			
10	3975	3855	3736	3616	3497	3378	3258	3139	3019	10	20	22	24	26	28	30	32	34	36	38			
20	3967	3848	3728	3609	3489	3370	3250	3131	3011	20	40	42	44	46	48	50	52	54	56	58	1'		
30	3960	3841	3721	3601	3482	3362	3242	3123	3003	30	60	62	64	66	68	70	72	74	76	78	2		
40	3953	3833	3713	3594	3474	3354	3234	3114	2995	40	80	82	84	86	88	90	92	94	96	98	3		
50	3946	3826	3706	3586	3466	3346	3226	3106	2987	50	100	102	104	106	108	110	112	114	116	118	4		
69	9.993939	3819	3699	3579	3459	3339	3219	3099	2978	0	0	2	4	6	8	10	12	14	16	18	5		
10	3932	3812	3692	3571	3451	3331	3211	3091	2970	10	20	22	24	26	28	30	32	34	36	38	6		
20	3925	3805	3684	3564	3444	3323	3203	3083	2963	20	40	42	44	46	48	50	52	54	56	58	7		
30	3918	3798	3677	3557	3436	3316	3196	3075	2955	30	60	62	64	66	68	70	72	74	76	78	8		
40	3911	3791	3670	3550	3429	3309	3188	3067	2947	40	80	82	84	86	88	90	92	94	96	98	9		
50	3905	3784	3663	3543	3422	3301	3180	3060	2939	50	100	102	104	106	108	110	112	114	116	118			
Moon's App. Alt.	Moon's Horizontal Parallax.											Proportional parts to Seconds of Parallax. Subtractive.											Min. of circles
	53'	54'	55'	56'	57'	58'	59'	60'	61'			0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		

LOGARITHMIC DIFFERENCE.

Moon's Horizontal Parallax.											Proportional parts to Seconds of Parallax. Subtractive.										of Alt. Par. being between.	
Moon's App. Alt.	53	54	55	56	57	58	59	60	61	"	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Min.	Subt.
0	9-993898	3777	3656	3536	3415	3294	3173	3052	2931	0	0	2	4	6	8	10	12	14	16	18		
10	3891	3770	3649	3529	3408	3287	3166	3045	2924	10	20	22	24	26	28	30	32	34	36	38		
20	3885	3764	3643	3522	3400	3279	3158	3037	2916	20	40	42	44	46	48	51	53	55	57	59	1'	1
30	3878	3757	3636	3515	3393	3272	3151	3030	2909	30	61	63	65	67	69	71	73	75	77	79	2'	1
40	3872	3750	3629	3508	3386	3265	3144	3023	2901	40	81	83	85	87	89	91	93	95	97	99	3'	2
50	3865	3744	3622	3501	3380	3258	3137	3015	2894	50	101	103	105	107	109	111	113	115	117	119	4'	3
60	9-993859	3737	3616	3494	3373	3251	3130	3008	2887	0	0	2	4	6	8	10	12	14	16	18		
70	3853	3731	3609	3488	3366	3244	3123	3001	2879	10	20	22	24	26	28	30	32	35	37	39	5'	3
80	3846	3725	3603	3481	3359	3237	3116	2994	2872	20	41	43	45	47	49	51	53	55	57	59	6'	4
90	3840	3718	3596	3474	3353	3231	3109	2987	2865	30	61	63	65	67	69	71	73	75	77	79	7'	5
100	3834	3712	3590	3468	3346	3224	3102	2980	2858	40	81	83	85	87	89	91	93	95	97	99	8'	6
110	3828	3706	3584	3461	3339	3217	3095	2973	2851	50	102	104	106	108	110	112	114	116	118	120	9'	6
120	9-993822	3700	3577	3455	3333	3211	3088	2966	2844	0	0	2	4	6	8	10	12	14	16	18		
130	3816	3694	3571	3449	3326	3204	3082	2959	2837	10	20	22	25	27	29	31	33	35	37	39		
140	3810	3688	3565	3443	3320	3198	3075	2953	2830	20	41	43	45	47	49	51	53	55	57	59	1'	1
150	3804	3681	3559	3436	3314	3191	3068	2946	2823	30	61	63	65	67	69	72	74	76	78	80	2'	1
160	3798	3676	3553	3430	3307	3185	3062	2939	2817	40	82	84	86	88	90	92	94	96	98	100	3'	2
170	3792	3670	3547	3424	3301	3178	3056	2933	2810	50	102	104	106	108	110	112	114	116	118	121	4'	2
180	9-993787	3664	3541	3418	3295	3172	3049	2926	2803	0	0	2	4	6	8	10	12	14	16	18		
190	3781	3658	3535	3412	3289	3166	3043	2920	2797	10	21	23	25	27	29	31	33	35	37	39	5'	3
200	3775	3652	3529	3406	3283	3160	3037	2913	2790	20	41	43	45	47	49	51	53	55	58	60	7'	4
210	3770	3647	3523	3400	3277	3154	3030	2907	2784	30	62	64	66	68	70	72	74	76	78	80	8'	5
220	3764	3641	3518	3394	3271	3148	3024	2901	2778	40	82	84	86	88	90	92	94	97	99	101	9'	5
230	3759	3636	3512	3389	3265	3142	3018	2895	2771	50	103	105	107	109	111	113	115	117	119	121		
240	9-993754	3630	3506	3383	3259	3136	3012	2889	2765	0	0	2	4	6	8	10	12	14	17	19		
250	3748	3625	3501	3377	3254	3130	3006	2883	2759	10	21	23	25	27	29	31	33	35	37	39		
260	3743	3619	3495	3372	3248	3124	3000	2877	2753	20	41	43	45	47	50	52	54	56	58	60	1'	1
270	3738	3614	3490	3366	3242	3118	2995	2871	2747	30	62	64	66	68	70	72	74	76	78	80	2'	1
280	3732	3609	3485	3361	3237	3113	2989	2865	2741	40	83	85	87	89	91	93	95	97	99	101	3'	2
290	3727	3603	3479	3355	3231	3107	2983	2859	2735	50	103	105	107	109	111	113	115	117	119	122	4'	2
300	9-993722	3598	3474	3350	3226	3102	2977	2853	2729	0	0	2	4	6	8	10	12	15	17	19		
310	3717	3593	3469	3345	3220	3096	2972	2848	2723	10	21	23	25	27	29	31	33	35	37	40	5'	3
320	3712	3588	3464	3339	3214	3091	2966	2842	2718	20	42	44	46	48	50	52	54	56	58	60	7'	4
330	3707	3583	3459	3334	3210	3085	2961	2837	2712	30	62	64	66	68	70	73	75	77	79	81	8'	4
340	3703	3578	3454	3329	3205	3080	2956	2831	2707	40	83	85	87	90	92	94	96	98	100	102	9'	5
350	3698	3573	3449	3324	3199	3075	2950	2826	2701	50	104	106	108	110	112	114	116	118	120	123		
360	9-993693	3568	3444	3319	3194	3070	2945	2820	2695	0	0	2	4	6	8	10	12	15	17	19		
370	3688	3564	3439	3314	3189	3064	2940	2815	2690	10	21	23	25	27	29	31	33	35	37	40		
380	3684	3559	3434	3309	3184	3059	2935	2810	2685	20	42	44	46	48	50	52	54	56	58	60	1'	0
390	3679	3554	3429	3304	3179	3054	2929	2804	2679	30	62	65	67	69	71	73	75	77	79	81	2'	1
400	3675	3550	3425	3300	3174	3049	2924	2799	2674	40	83	85	87	90	92	94	96	98	100	102	3'	1
410	3670	3545	3420	3295	3170	3045	2919	2794	2669	50	104	106	108	110	112	115	117	119	121	123	4'	2
420	9-993666	3541	3415	3290	3165	3040	2914	2789	2664	0	0	2	4	6	8	10	13	15	17	19		
430	3661	3536	3411	3285	3160	3035	2910	2784	2659	10	21	23	25	27	29	31	33	36	38	40	5'	3
440	3657	3532	3406	3281	3156	3030	2905	2779	2654	20	42	44	46	48	50	52	54	56	59	61	7'	3
450	3653	3527	3402	3276	3151	3026	2900	2775	2649	30	63	65	67	69	71	73	75	77	79	82	8'	4
460	3649	3523	3398	3272	3146	3021	2895	2770	2644	40	84	86	88	90	92	94	96	98	100	103	9'	4
470	3644	3519	3393	3268	3142	3016	2891	2765	2640	50	105	107	109	111	113	115	117	119	121	123		
480	9-993640	3515	3389	3263	3138	3012	2886	2761	2635	0	0	2	4	6	8	11	13	15	17	19		
490	3636	3511	3385	3259	3133	3008	2882	2756	2630	10	21	23	25	27	29	32	34	36	38	40		
500	3632	3507	3381	3255	3129	3003	2877	2752	2626	20	42	44	46	48	50	53	55	57	59	61	1'	0
510	3629	3503	3377	3251	3125	2999	2873	2747	2621	30	63	65	67	69	71	74	76	78	80	82	2'	1
520	3625	3499	3373	3247	3121	2995	2869	2743	2617	40	84	86	88	90	92	95	97	99	101	103	3'	1
530	3621	3495	3369	3243	3117	2991	2865	2739	2613	50	105	107	109	111	113	116	118	120	122	124	4'	2
540	9-993617	3491	3365	3239	3113	2987	2861	2734	2608	0	0	2	4	6	8	11	13	15	17	19		
550	3613	3487	3361	3235	3109	2983	2857	2730	2604	10	21	23	25	27	29	32	34	36	38	40	5'	2
560	3610	3484	3357	3231	3105	2979	2852	2726	2600	20	42	44	46	48	50	53	55	57	59	61	7'	3
570	3606	3480	3354	3227	3101	2975	2848	2722	2596	30	63	65	67	69	72	74	76	78	80	82	8'	3
580	3603	3476	3350	3224	3097	2971	2844	2718	2592	40	84	86	88	90	93	95	97	99	101	103	9'	4
590	3599	3473	3346	3220	3093	2967	2840	2714	2588	50	105	107	109	112	114	116	118	120	122	124		
600	9-993593	3461	3335	3209	3083	2957	2831	2704	2578	0	0	2	4	6	8	11	13	15	17	19		
610	3591	3																				

LOGARITHMIC DIFFERENCE.

Moon's App. Alt.	Moon's Horizontal Parallax.											Proportional parts to -											Min. of Sec.
												Seconds of Parallax. Subtractive.											
	53'	54'	55'	56'	57'	58'	59'	60'	61'			0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
80	9.993596	3469	3342	3216	3090	2963	2837	2710	2584	0	0	0	2	4	6	8	11	13	15	17	19	0	
10	3592	3466	3339	3213	3086	2960	2833	2706	2580	10	21	23	25	27	30	32	34	36	38	40	42	1	
20	3589	3463	3336	3209	3083	2956	2829	2703	2576	20	42	44	46	49	51	53	55	57	59	61	63	2	
30	3586	3459	3332	3206	3079	2952	2826	2699	2572	30	63	65	68	70	72	74	76	78	80	82	84	3	
40	3583	3456	3329	3202	3076	2949	2822	2695	2568	40	84	87	89	91	93	95	97	99	101	103	105	4	
50	3580	3453	3326	3199	3072	2945	2818	2692	2565	50	106	108	110	112	114	116	118	120	122	124	126	5	
81	9.993577	3450	3323	3196	3069	2942	2815	2688	2561	0	0	0	2	4	6	8	11	13	15	17	19	0	
10	3574	3447	3320	3193	3066	2939	2812	2685	2558	10	21	23	25	27	30	32	34	36	38	40	42	1	
20	3571	3444	3316	3189	3062	2935	2808	2681	2554	20	42	44	47	49	51	53	55	57	59	61	63	2	
30	3568	3441	3313	3186	3059	2932	2805	2678	2551	30	63	66	68	70	72	74	76	78	80	82	84	3	
40	3565	3438	3310	3183	3056	2929	2802	2675	2548	40	85	87	89	91	93	95	97	99	101	103	105	4	
50	3562	3435	3308	3180	3053	2926	2799	2672	2545	50	106	108	110	112	114	116	118	120	122	124	126	5	
82	9.993559	3432	3305	3178	3050	2923	2796	2669	2542	0	0	0	2	4	6	8	11	13	15	17	19	0	
10	3556	3429	3302	3175	3047	2920	2793	2666	2538	10	21	23	25	28	30	32	34	36	38	40	42	1	
20	3554	3427	3299	3172	3045	2917	2790	2663	2535	20	42	45	47	49	51	53	55	57	59	61	63	2	
30	3551	3424	3297	3169	3042	2915	2787	2660	2532	30	64	66	68	70	72	74	76	78	80	82	84	3	
40	3549	3421	3294	3167	3039	2912	2784	2657	2529	40	85	87	89	91	93	95	98	100	102	104	106	4	
50	3546	3419	3292	3164	3037	2909	2782	2654	2527	50	106	108	110	112	114	117	119	121	123	125	127	5	
83	9.993544	3417	3289	3162	3034	2907	2779	2652	2524	0	0	0	2	4	6	9	11	13	15	17	19	0	
10	3542	3414	3287	3159	3032	2904	2776	2649	2521	10	21	23	26	28	30	32	34	36	38	40	42	1	
20	3539	3412	3284	3157	3029	2901	2774	2646	2519	20	43	45	47	49	51	53	55	57	60	62	64	2	
30	3537	3410	3282	3154	3027	2899	2771	2644	2516	30	64	66	68	70	72	74	77	79	81	83	85	3	
40	3535	3407	3280	3152	3024	2897	2769	2641	2514	40	85	87	89	91	94	96	98	100	102	104	106	4	
50	3533	3405	3278	3150	3022	2894	2767	2639	2511	50	106	108	111	113	115	117	119	121	123	125	127	5	
84	9.993531	3403	3275	3148	3020	2892	2764	2637	2509	0	0	0	2	4	6	9	11	13	15	17	19	0	
10	3529	3401	3273	3145	3018	2890	2762	2634	2507	10	21	23	26	28	30	32	34	36	38	40	42	1	
20	3527	3399	3271	3143	3016	2888	2760	2632	2504	20	43	45	47	49	51	53	55	58	60	62	64	2	
30	3525	3397	3269	3141	3014	2886	2758	2630	2502	30	64	66	68	70	72	75	77	79	81	83	85	3	
40	3523	3395	3267	3139	3012	2884	2756	2628	2500	40	85	87	90	92	94	96	98	100	102	104	106	4	
50	3521	3393	3265	3137	3010	2882	2754	2626	2498	50	107	109	111	113	115	117	119	121	123	125	127	5	
85	9.993516	3392	3264	3136	3008	2880	2752	2624	2496	0	0	0	2	4	6	9	11	13	15	17	19	0	
10	3518	3390	3262	3134	3006	2878	2750	2622	2494	10	21	23	26	28	30	32	34	36	38	40	42	1	
20	3516	3388	3260	3132	3004	2876	2748	2620	2492	20	43	45	47	49	51	53	56	58	60	62	64	2	
30	3515	3387	3259	3130	3002	2874	2746	2618	2490	30	64	66	68	70	73	75	77	79	81	83	85	3	
40	3513	3385	3257	3129	3001	2873	2745	2617	2489	40	85	88	90	92	94	96	98	100	102	104	106	4	
50	3512	3384	3255	3127	2999	2871	2743	2615	2487	50	107	109	111	113	115	117	120	122	124	126	128	5	
86	9.993503	3382	3254	3126	2998	2870	2742	2613	2485	0	0	0	2	4	6	9	11	13	15	17	19	0	
10	3509	3381	3253	3124	2996	2868	2740	2612	2484	10	21	23	26	28	30	32	34	36	38	40	42	1	
20	3507	3379	3251	3123	2995	2867	2739	2610	2482	20	43	45	47	49	51	53	56	58	60	62	64	2	
30	3506	3378	3250	3122	2994	2866	2737	2608	2481	30	64	66	68	70	73	75	77	79	81	83	85	3	
40	3505	3377	3249	3120	2992	2864	2736	2608	2479	40	85	88	90	92	94	96	98	100	102	104	106	4	
50	3504	3376	3248	3119	2991	2863	2735	2606	2478	50	107	109	111	113	115	117	120	122	124	126	128	5	
87	9.993503	3375	3247	3118	2990	2862	2734	2605	2477	0	0	0	2	4	6	9	11	13	15	17	19	0	
10	3502	3374	3246	3117	2989	2861	2732	2604	2476	10	21	24	26	28	30	32	34	36	38	40	42	1	
20	3501	3373	3245	3116	2988	2860	2731	2603	2475	20	43	45	47	49	51	53	56	58	60	62	64	2	
30	3500	3372	3244	3115	2987	2859	2730	2602	2474	30	64	66	68	71	73	75	77	79	81	83	85	3	
40	3499	3371	3243	3114	2986	2858	2730	2601	2473	40	85	88	90	92	94	96	98	100	102	104	106	4	
50	3499	3370	3242	3113	2985	2857	2729	2600	2474	50	107	109	111	113	115	118	120	122	124	126	128	5	
88	9.993498	3370	3241	3113	2985	2856	2728	2600	2471	0	0	0	2	4	6	9	11	13	15	17	19	0	
10	3497	3369	3241	3112	2984	2856	2727	2599	2470	10	21	24	26	28	30	32	34	36	39	41	43	1	
20	3497	3369	3240	3112	2983	2855	2727	2598	2470	20	43	45	47	49	51	53	56	58	60	62	64	2	
30	3496	3368	3240	3111	2983	2854	2726	2598	2469	30	64	66	68	71	73	75	77	79	81	83	85	3	
40	3496	3367	3239	3111	2982	2854	2725	2597	2469	40	86	88	90	92	94	96	98	101	103	105	107	4	
50	3495	3367	3239	3110	2982	2853	2725	2597	2468	50	107	109	111	113	116	118	120	122	124	126	128	5	
89	9.993495	3367	3238	3110	2981	2853	2725	2596	2468	0	0	0	2	4	6	9	11	13	15	17	19	0	
10	3495	3366	3238	3109	2981	2853	2724	2596	2467	10	21	24	26	28	30	32	34	36	39	41	43	1	
20	3494	3366	3238	3109	2981	2852	2724	2595	2467	20	43	45	47	49	51	53	56	58	60	62	64	2	
30	3494	3366	3237	3109	2981	2852	2724	2595	2467	30	64	66	68	71	73	75	77	79	81	83	85	3	
40	3494	3366	3237	3109	2980	2852	2723	2595	2467	40	86	88	90	92	94	96	98	101	103	105	107	4	
50	3494	3366	3237	3109	2980	2852	2723	2595	2466	50	107	109	111	113	116	118	120	122	124	126	128	5	
Moon's App. Alt.	Moon's Horizontal Parallax.											Proportional parts to -											Min. of Sec.
												Seconds of Parallax. Subtractive.											
	53'	54'	55'	56'	57'	58'	59'	60'	61'			0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		

CORRECTION OF THE LOGARITHMIC DIFFERENCE.

When the Moon's distance from the Sun is observed.												When the Moon's distance from a Star is observed.											
Sun's Ap. Alt.	Correct. Subt.	Sun's Ap. Alt.	Correct. Subt.	Sun's Ap. Alt.	Correct. Subt.	Sun's Ap. Alt.	Correct. Subt.	Sun's Ap. Alt.	Correct. Subt.	Sun's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.	Star's Ap. Alt.	Correct. Subt.
0 0	140	0 0	19	0 0	19	0 0	19	0 0	19	0 0	19	0 0	140	0 0	18	0 0	19	0 0	19	0 0	0 0	0 0	
10 10	126	10 10	18	10 10	20	10 10	18	10 10	20	10 10	18	10 10	126	10 10	17	10 10	20	10 10	20	10 10	0 0	0 0	
20 20	114	20 20	17	20 20	21	20 20	17	20 20	21	20 20	17	20 20	114	20 20	16	20 20	21	20 20	21	20 20	0 0	0 0	
30 30	104	30 30	16	30 30	22	30 30	16	30 30	22	30 30	16	30 30	104	30 30	15	30 30	22	30 30	22	30 30	0 0	0 0	
40 40	94	40 40	15	40 40	23	40 40	15	40 40	23	40 40	15	40 40	94	40 40	14	40 40	23	40 40	23	40 40	0 0	0 0	
50 50	85	50 50	15	50 50	24	50 50	15	50 50	24	50 50	15	50 50	85	50 50	13	50 50	24	50 50	24	50 50	0 0	0 0	
1 0	77	5 0	14	25 9	49	14 73	18	14 73	18	1 0	77	5 0	12	25 9	49	14 73	18	14 73	18	1 0	77	5 0	
10 70	20	13 26	9	50 14	74	18 18	10 70	20	13 26	9	50 14	74	18 18	10 70	20	13 26	9	50 14	74	18 18	10 70	20	
20 64	10	12 27	9	51 14	75	18 18	20 64	10	12 27	9	51 14	75	18 18	20 64	10	12 27	9	51 14	75	18 18	20 64	10	
30 58	6 0	11 28	9	52 15	76	18 18	30 58	6 0	11 28	9	52 15	76	18 18	30 58	6 0	11 28	9	52 15	76	18 18	30 58	6 0	
40 53	20	10 29	10	53 15	77	18 18	40 53	20	10 29	10	53 15	77	18 18	40 53	20	10 29	10	53 15	77	18 18	40 53	20	
50 49	40	10 30	10	54 15	78	18 18	50 49	40	10 30	10	54 15	78	18 18	50 49	40	10 30	10	54 15	78	18 18	50 49	40	
2 0	45	7 0	9	31 10	55	15 79	2 0	45	7 0	9	31 10	55	15 79	2 0	45	7 0	9	31 10	55	15 79	2 0	45	
10 41	8 0	8 32	10	56 16	80	18 18	10 41	8 0	8 32	10	56 16	80	18 18	10 41	8 0	8 32	10	56 16	80	18 18	10 41	8 0	
20 38	9	7 33	10	57 16	81	18 18	20 38	9	7 33	10	57 16	81	18 18	20 38	9	7 33	10	57 16	81	18 18	20 38	9	
30 35	10	7 34	11	58 16	82	18 18	30 35	10	7 34	11	58 16	82	18 18	30 35	10	7 34	11	58 16	82	18 18	30 35	10	
40 33	11	7 35	11	59 16	83	19 19	40 33	11	7 35	11	59 16	83	19 19	40 33	11	7 35	11	59 16	83	19 19	40 33	11	
50 30	12	7 36	11	60 16	84	19 19	50 30	12	7 36	11	60 16	84	19 19	50 30	12	7 36	11	60 16	84	19 19	50 30	12	
3 0	28	13 6	37	11 61	16 85	19 19	3 0	27	13 2	37	11 61	16 85	19 19	3 0	27	13 2	37	11 61	16 85	19 19	3 0	27	
10 26	14	6 3	11	62 16	86	19 19	10 26	14	2 38	0 62	16 86	19 19	10 26	14	2 38	0 62	16 86	19 19	10 26	14			
20 25	15	6 39	12	63 17	87	19 19	20 25	15	1 39	0 63	17 87	19 19	20 25	15	1 39	0 63	17 87	19 19	20 25	15			
30 23	16	6 40	12	64 17	88	19 19	30 23	16	1 40	0 64	17 88	19 19	30 23	16	1 40	0 64	17 88	19 19	30 23	16			
40 22	17	7 41	12	65 17	89	19 19	40 22	17	1 41	0 65	17 89	19 19	40 22	17	1 41	0 65	17 89	19 19	40 22	17			
50 20	18	7 42	13	66 17	90	19 19	50 20	18	1 42	0 66	17 90	19 19	50 20	18	1 42	0 66	17 90	19 19	50 20	18			

TABLE XXVI.—CORRECTION OF THE LOGARITHMIC DIFFERENCE WHEN THE MOON'S DISTANCE FROM A PLANET IS OBSERVED.

Planet's Horizontal Parallax.																				
Planet's Ap. Alt.	1"	3"	5"	7"	9"	11"	13"	15"	17"	19"	21"	23"	25"	27"	29"	31"	33"	Planet's Ap. Alt.		
10	77	77	77	77	77	77	77	77	77	77	77	78	78	78	78	78	78	10		
2	44	45	45	45	45	45	45	45	46	46	46	46	46	46	46	47	47	2		
3	27	28	28	28	28	28	29	29	29	29	29	30	30	30	30	31	31	3		
4	18	18	19	19	19	19	20	20	20	21	21	21	21	22	22	22	23	4		
5	12	13	13	14	14	14	15	15	15	16	16	17	17	17	17	18	18	5		
6	9	10	10	10	11	11	12	12	13	13	13	14	14	15	15	16	16	6		
7	8	8	8	9	10	10	11	11	12	12	13	13	14	14	15	15	15	7		
8	6	7	7	8	9	9	10	10	11	11	12	12	13	14	14	15	15	8		
9	5	6	6	7	7	8	8	9	9	10	11	11	12	13	14	15	15	9		
10	4	5	5	6	7	7	8	8	9	10	11	11	12	13	14	15	15	10		
11	3	4	5	6	7	8	8	9	10	11	11	12	13	14	15	16	16	11		
12	3	4	5	6	7	8	8	9	10	11	12	13	14	15	16	16	17	12		
13	3	4	5	6	7	8	9	9	10	11	12	13	14	15	16	17	17	13		
14	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	17	18	14		
15	2	3	4	5	7	8	9	10	11	12	14	15	16	17	18	19	20	15		
16	2	3	4	6	7	8	9	11	12	13	15	16	18	19	20	21	22	16		
17	2	3	4	6	7	8	9	10	12	13	14	16	18	20	21	22	23	17		
18	2	3	4	6	7	8	9	10	12	13	14	16	18	20	21	22	23	18		
19	2	3	4	6	7	8	9	10	12	13	14	16	18	20	21	22	23	19		
20	2	3	4	6	7	8	9	10	12	13	14	16	18	20	21	22	23	20		
21	2	3	4	7	8	9	10	11	13	14	16	18	20	22	23	25	26	21		
22	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	22		
23	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	23		
24	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	24		
25	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	25		
26	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	26		
27	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	27		
28	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	28		
29	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	29		
30	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	30		
31	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	31		
32	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	32		
33	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	33		
34	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	34		
35	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	35		
36	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	36		
37	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	37		
38	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	38		
39	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	39		
40	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	40		
41	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	41		
42	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	42		
43	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	43		
44	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	44		
45	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	45		
46	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	46		
47	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	47		
48	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	48		
49	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	49		
50	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	50		
51	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	51		
52	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	52		
53	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	53		
54	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	54		
55	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	55		
56	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	56		
57	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	57		
58	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	58		
59	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	59		
60	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	60		
61	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	61		
62	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	62		
63	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	63		
64	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	64		
65	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	65		
66	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	66		
67	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	67		
68	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	68		
69	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	69		
70	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	70		
71	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	71		
72	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	72		
73	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	73		
74	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	74		
75	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	75		
76	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	76		
77	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	77		
78	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	78		
79	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	79		
80	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	80		
81	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	81		
82	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	82		
83	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	83		
84	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	84		
85	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	85		
86	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	86		
87	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	87		
88	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	88		
89	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	89		
90	2	3	4	7	9	11	13	14	15	17	19	20	21	24	25	28	29	90		

Natural Versed Sine of 2 degrees, or Co-versed Sine of 92 degrees.						Minutes
10'	20'	30'	40'	50'		
09 000611	000613	000614	000616	000618	59	
19 000621	000623	000624	000626	000628	58	
30 000631	000633	000635	000637	000638	57	
40 000641	000643	000645	000647	000649	56	
50 000652	000654	000656	000657	000659	55	
60 000663	000665	000666	000668	000670	54	
72 000673	000675	000677	000679	000681	53	
82 000684	000686	000688	000689	000691	52	
93 000695	000697	000699	000700	000702	51	
04 000706	000708	000709	000711	000713	50	
16 000717	000719	000720	000722	000724	49	
26 000728	000730	000732	000733	000735	48	
37 000739	000741	000743	000745	000746	47	
48 000750	000752	000754	000756	000758	46	
60 000761	000763	000765	000767	000769	45	
71 000773	000775	000777	000779	000781	44	
82 000784	000786	000788	000790	000792	43	
94 000796	000798	000800	000802	000804	42	
06 000808	000810	000811	000813	000815	41	
17 000819	000821	000823	000825	000827	40	
29 000831	000833	000835	000837	000839	39	
41 000843	000845	000847	000849	000851	38	
53 000855	000857	000859	000861	000863	37	
65 000867	000869	000871	000873	000875	36	
77 000879	000881	000883	000885	000887	35	
89 000891	000893	000896	000898	000900	34	
02 000904	000906	000908	000910	000912	33	
14 000916	000918	000920	000922	000924	32	
27 000929	000931	000933	000935	000937	31	
39 000941	000943	000945	000948	000950	30	
52 000954	000956	000958	000960	000962	29	
65 000967	000969	000971	000973	000975	28	
77 000979	000982	000984	000986	000988	27	
90 000992	000995	000997	000999	010001	26	
03 010005	010008	010010	010012	010014	25	
16 010018	010021	010023	010025	010027	24	
29 010032	010034	010036	010038	010040	23	
43 010045	010047	010049	010052	010054	22	
56 010058	010060	010063	010065	010067	21	
69 010072	010074	010076	010078	010081	20	
83 010085	010087	010090	010092	010094	19	
96 010099	010101	010103	010106	010108	18	
10 010112	010115	010117	010119	010122	17	
24 010126	010128	010131	010133	010135	16	
38 010140	010142	010145	010147	010149	15	
52 010154	010156	010159	010161	010163	14	
66 010168	010170	010173	010175	010177	13	
80 010182	010184	010187	010189	010191	12	
94 010196	010199	010201	010203	010206	11	
08 010210	010213	010215	010218	010220	10	
12 010225	010227	010230	010232	010234	9	
27 010239	010242	010244	010247	010249	8	
41 010254	010256	010259	010261	010264	7	
56 0						

NATURAL VERSED SINES.

Natural Versed Sine of 4 degrees, or Co-versed Sine of 94 degrees.																							
Minutes	0"	10"	20"	30"	40"	50"	Minutes	Natural Versed Sine of 5 degrees, or Co-versed Sine of 94 degrees.															
Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"	20"	30"	40"	50"	Minutes									
0	002436	002439	002443	002446	002449	002453	59	0	003805	003810	003814	003818	003822	003826	59								
1	002456	002460	002463	002466	002470	002473	58	1	003831	003835	003839	003843	003848	003852	58								
2	002477	002480	002484	002487	002490	002494	57	2	003856	003860	003865	003869	003873	003877	57								
3	002497	002501	002504	002507	002511	002514	56	3	003882	003886	003890	003895	003899	003903	56								
4	002518	002521	002525	002528	002532	002535	55	4	003907	003912	003916	003920	003925	003929	55								
5	002538	002542	002545	002549	002553	002556	54	5	003933	003937	003942	003946	003950	003955	54								
6	002559	002563	002566	002570	002573	002577	53	6	003959	003963	003968	003972	003976	003981	53								
7	002580	002584	002587	002591	002594	002597	52	7	003985	003989	003993	003998	004002	004006	52								
8	002601	002604	002608	002612	002615	002618	51	8	004011	004015	004019	004024	004028	004033	51								
9	002622	002625	002629	002633	002636	002640	50	9	004037	004041	004046	004050	004054	004059	50								
10	002643	002647	002650	002654	002657	002661	49	10	004063	004067	004072	004076	004081	004085	49								
11	002664	002668	002671	002675	002678	002682	48	11	004089	004094	004098	004102	004107	004111	48								
12	002686	002689	002693	002696	002700	002703	47	12	004116	004120	004124	004129	004133	004138	47								
13	002707	002710	002714	002718	002721	002725	46	13	004142	004146	004151	004155	004160	004164	46								
14	002728	002732	002735	002739	002743	002746	45	14	004168	004173	004177	004182	004186	004191	45								
15	002750	002753	002757	002761	002764	002768	44	15	004195	004200	004204	004208	004213	004217	44								
16	002771	002775	002779	002782	002786	002789	43	16	004222	004226	004231	004235	004240	004244	43								
17	002793	002797	002800	002804	002808	002811	42	17	004248	004253	004257	004262	004266	004271	42								
18	002815	002819	002822	002826	002829	002833	41	18	004275	004280	004284	004289	004293	004298	41								
19	002837	002840	002844	002848	002851	002855	40	19	004302	004307	004311	004316	004320	004325	40								
20	002859	002862	002866	002870	002873	002877	39	20	004329	004334	004338	004343	004347	004352	39								
21	002881	002884	002888	002892	002895	002899	38	21	004356	004361	004365	004370	004374	004379	38								
22	002903	002906	002910	002914	002918	002921	37	22	004383	004388	004393	004397	004402	004406	37								
23	002925	002929	002932	002936	002940	002944	36	23	004411	004415	004420	004424	004429	004433	36								
24	002947	002951	002955	002958	002962	002966	35	24	004438	004443	004447	004452	004456	004461	35								
25	002970	002973	002977	002981	002985	002988	34	25	004465	004470	004475	004479	004484	004488	34								
26	002992	002996	003000	003003	003007	003011	33	26	004493	004498	004502	004507	004511	004516	33								
27	003015	003018	003022	003026	003030	003033	32	27	004521	004525	004530	004534	004539	004544	32								
28	003037	003041	003045	003049	003052	003056	31	28	004548	004553	004557	004562	004567	004571	31								
29	003060	003064	003067	003071	003075	003079	30	29	004576	004581	004585	004590	004595	004599	30								
30	003083	003086	003090	003094	003098	003102	29	30	004604	004608	004613	004618	004622	004627	29								
31	003106	003109	003113	003117	003121	003125	28	31	004632	004636	004641	004646	004650	004655	28								
32	003128	003132	003136	003140	003144	003148	27	32	004660	004664	004669	004674	004678	004683	27								
33	003152	003155	003159	003163	003167	003171	26	33	004688	004693	004697	004702	004707	004711	26								
34	003175	003178	003182	003186	003190	003194	25	34	004716	004721	004725	004730	004735	004740	25								
35	003198	003202	003206	003209	003213	003217	24	35	004744	004749	004754	004758	004763	004768	24								
36	003221	003225	003229	003233	003237	003241	23	36	004773	004777	004782	004787	004792	004796	23								
37	003244	003248	003252	003256	003260	003264	22	37	004801	004806	004811	004815	004820	004825	22								
38	003268	003272	003276	003280	003284	003288	21	38	004830	004834	004839	004844	004849	004853	21								
39	003291	003295	003299	003303	003307	003311	20	39	004858	004863	004868	004872	004877	004881	20								
40	003315	003319	003323	003327	003331	003335	19	40	004887	004892	004896	004901	004906	004911	19								
41	003339	003343	003347	003351	003355	003359	18	41	004916	004920	004925	004930	004935	004940	18								
42	003363	003367	003371	003375	003379	003383	17	42	004944	004949	004954	004959	004964	004969	17								
43	003386	003390	003394	003398	003402	003406	16	43	004973	004978	004983	004988	004993	004998	16								
44	003410	003414	003418	003422	003426	003430	15	44	005002	005007	005012	005017	005022	005027	15								
45	003434	003439	003443	003447	003451	003455	14	45	005031	005036	005041	005046	005051	005056	14								
46	003459	003463	003467	003471	003475	003479	13	46	005061	005066	005070	005075	005080	005085	13								
47	003483	003487	003491	003495	003499	003503	12	47	005090	005095	005100	005105	005109	005114	12								
48	003507	003511	003515	003519	003523	003527	11	48	005119	005124	005129	005134	005139	005144	11								
49	003532	003536	003540	003544	003548	003552	10	49	005149	005154	005159	005163	005168	005173	10								
50	003556	003560	003564	003568	003572	003576	9	50	005178	005183	005188	005193	005198	005203	9								
51	003581	003585	003589	003593	003597	003601	8	51	005208	005213	005218	005223	005228	005233	8								
52	003605	003609	003613	003618	003622	003626	7	52	005238	005243	005247	005252	005257	005262	7								
53	003630	003634	003638	003643	003646	003651	6	53	005267	005272	005277	005282	005287	005292	6								
54	003655	003659	003663	003667	003671	003675	5	54	005297	005302	005307	005312	005317	005322	5								
55	003680	003684	003688	003692	003696	003700	4	55	005327	005332	005337	005342	005347	005352	4								
56	003705	003709	003713	003717	003721	003725	3	56	005357	005362	005367	005372	005377	005382	3								
57	003730	003734	003738	003742	003746	003751	2	57	005387	005392	005397	005402	005407	005412	2								
58	003755	003759	003763	003767	003772	003776	1	58	005417	005423	005428	005433	005438	005443	1								
59	003780	003784	003788	003793	003797	003801	0	59	005448	005453	005458	005463	005468	005473	0								
Minutes	60"	50"	40"	30"	20"	10"	Minutes	Minutes	60"	50"	40"	30"	20"	10"	Minutes								
Co-versed Sine of 85 degrees, or Versed Sine Supplement of 175 degrees.												Co-versed Sine of 84 degrees, or Versed Sine Supplement of 174 degrees.											
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"												Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"											
parts. } 0 1 1 2 2 2 3 3 4												parts. } 0 1 1 2 2 3 3 4 4											

NATURAL VERSED SINES.

Natural Versed Sine of 6 degrees, or Co-versed Sine of 96 degrees.							Minutes	Natural Versed Sine of 7 degrees, or Co-versed Sine of 97 degrees.							Minutes									
Minutes	0"	10"	20"	30"	40"	50"	Minutes	Minutes	0"	10"	20"	30"	40"	50"	Minutes									
0	005478	005483	005488	005493	005498	005503	59	0	007454	007460	007466	007472	007478	007483	59									
1	005509	005514	005519	005524	005529	005534	58	1	007489	007495	007501	007507	007513	007518	58									
2	005539	005544	005549	005554	005559	005565	57	2	007525	007531	007537	007543	007549	007555	57									
3	005570	005575	005580	005585	005590	005595	56	3	007561	007567	007572	007578	007584	007590	56									
4	005600	005605	005610	005616	005621	005626	55	4	007596	007602	007608	007614	007620	007626	55									
5	005631	005636	005641	005647	005652	005657	54	5	007632	007638	007644	007650	007656	007662	54									
6	005662	005667	005672	005678	005683	005688	53	6	007668	007674	007680	007686	007692	007698	53									
7	005693	005698	005703	005709	005714	005719	52	7	007704	007710	007716	007722	007728	007734	52									
8	005724	005729	005734	005740	005745	005750	51	8	007740	007746	007752	007758	007764	007770	51									
9	005755	005760	005766	005771	005776	005781	50	9	007776	007782	007788	007794	007800	007807	50									
10	005786	005792	005797	005802	005807	005812	49	10	007813	007819	007825	007831	007837	007843	49									
11	005818	005823	005828	005833	005839	005844	48	11	007849	007855	007861	007867	007873	007879	48									
12	005849	005854	005860	005865	005870	005875	47	12	007885	007891	007897	007904	007910	007916	47									
13	005880	005886	005891	005896	005902	005907	46	13	007922	007928	007934	007940	007946	007952	46									
14	005912	005917	005923	005928	005933	005938	45	14	007958	007964	007971	007977	007983	007989	45									
15	005944	005949	005954	005960	005965	005970	44	15	007995	008001	008007	008013	008020	008026	44									
16	005975	005981	005986	005991	005997	006002	43	16	008032	008038	008044	008050	008056	008062	43									
17	006007	006012	006018	006023	006028	006034	42	17	008066	008072	008078	008084	008090	008096	42									
18	006039	006044	006050	006055	006060	006066	41	18	008106	008112	008118	008124	008130	008136	41									
19	006071	006076	006082	006087	006092	006098	40	19	008143	008149	008155	008161	008167	008173	40									
20	006103	006108	006114	006119	006124	006130	39	20	008180	008186	008192	008198	008204	008211	39									
21	006135	006141	006146	006151	006157	006162	38	21	008217	008223	008229	008235	008242	008248	38									
22	006167	006173	006178	006184	006189	006194	37	22	008254	008260	008267	008273	008279	008285	37									
23	006200	006205	006210	006216	006221	006227	36	23	008291	008298	008304	008310	008316	008323	36									
24	006232	006237	006243	006248	006254	006259	35	24	008329	008335	008341	008348	008354	008360	35									
25	006265	006270	006275	006281	006286	006292	34	25	008366	008373	008379	008385	008391	008398	34									
26	006297	006303	006308	006313	006319	006324	33	26	008404	008410	008416	008423	008429	008435	33									
27	006330	006335	006341	006346	006352	006357	32	27	008442	008448	008454	008460	008467	008473	32									
28	006362	006368	006373	006379	006384	006390	31	28	008479	008486	008492	008498	008505	008511	31									
29	006395	006401	006406	006412	006417	006423	30	29	008517	008524	008530	008536	008542	008549	30									
30	006428	006434	006439	006445	006450	006456	29	30	008555	008561	008568	008574	008580	008587	29									
31	006461	006467	006472	006478	006483	006489	28	31	008593	008599	008606	008612	008619	008625	28									
32	006494	006500	006505	006511	006516	006522	27	32	008631	008638	008644	008650	008657	008663	27									
33	006527	006533	006538	006544	006549	006555	26	33	008660	008667	008673	008679	008686	008692	26									
34	006561	006566	006572	006577	006583	006588	25	34	008708	008714	008720	008727	008733	008740	25									
35	006594	006599	006605	006611	006616	006622	24	35	008746	008752	008759	008765	008772	008778	24									
36	006627	006633	006638	006644	006650	006655	23	36	008784	008791	008797	008804	008810	008817	23									
37	006661	006666	006672	006677	006683	006689	22	37	008823	008829	008836	008842	008849	008855	22									
38	006694	006700	006705	006711	006717	006722	21	38	008862	008868	008874	008881	008887	008894	21									
39	006728	006734	006739	006745	006750	006756	20	39	008900	008907	008913	008920	008926	008933	20									
40	006762	006767	006773	006779	006784	006790	19	40	008939	008945	008952	008958	008965	008971	19									
41	006795	006801	006807	006812	006818	006824	18	41	008978	008984	008991	008997	009004	009010	18									
42	006829	006835	006841	006846	006852	006858	17	42	009017	009023	009030	009036	009043	009049	17									
43	006863	006869	006875	006880	006886	006892	16	43	009056	009062	009069	009075	009082	009088	16									
44	006897	006903	006909	006914	006920	006926	15	44	009095	009101	009108	009114	009121	009128	15									
45	006932	006937	006943	006949	006954	006960	14	45	009134	009141	009147	009154	009160	009167	14									
46	006966	006971	006977	006983	006989	006994	13	46	009173	009180	009186	009193	009200	009206	13									
47	007000	007006	007012	007017	007023	007029	12	47	009213	009219	009226	009232	009239	009246	12									
48	007034	007040	007046	007052	007057	007063	11	48	009252	009259	009265	009272	009279	009285	11									
49	007069	007075	007080	007086	007092	007098	10	49	009292	009298	009305	009311	009318	009325	10									
50	007104	007109	007115	007121	007127	007132	9	50	009331	009338	009345	009351	009358	009364	9									
51	007138	007144	007150	007156	007161	007167	8	51	009371	009378	009384	009391	009397	009404	8									
52	007173	007179	007185	007190	007196	007202	7	52	009411	009417	009424	009431	009437	009444	7									
53	007208	007214	007219	007225	007231	007237	6	53	009451	009457	009464	009471	009477	009484	6									
54	007243	007248	007254	007260	007266	007272	5	54	009491	009497	009504	009511	009517	009524	5									
55	007278	007283	007289	007295	007301	007307	4	55	009531	009537	009544	009551	009557	009564	4									
56	007313	007319	007324	007330	007336	007342	3	56	009571	009577	009584	009591	009597	009604	3									
57	007348	007354	007360	007365	007371	007377	2	57	009611	009618	009624	009631	009638	009644	2									
58	007383	007389	007395	007401	007407	007412	1	58	009651	009658	009665	009671	009678	009685	1									
59	007418	007424	007430	007436	007442	007448	0	59	009691	009698	009705	009712	009718	009725	0									
Minutes	60"	50"	40"	30"	20"	10"	Minutes	Minutes	60"	50"	40"	30"	20"	10"	Minutes									
Co-versed Sine of 83 degrees, or Versed Sine Supplement of 173 degrees.							Co-versed Sine of 82 degrees, or Versed Sine Supplement of 172 degrees.																	
Proper parts.	1"	2"	3"	4"	5"	6"	7"	8"	9"	Proper parts.	1"	2"	3"	4"	5"	6"	7"	8"	9"					
	1	1	2	2	3	3	4	4	5		1	1	2	3	3	4	4	5	6					

NATURAL VERSED SINES.

Natural Versed Sine of 8 degrees, or Co-versed Sine of 98 degrees.							Minutes	Natural Versed Sine of 9 degrees, or Co-versed Sine of 99 degrees.							Minutes	
Minutes	0"	10"	20"	30"	40"	50"		Minutes	0"	10"	20"	30"	40"	50"		
0	009732	009739	009745	009752	009759	009766	59	0	012312	012319	012327	012334	012342	012350	59	
1	009772	009779	009786	009793	009800	009806	58	1	012357	012365	012372	012380	012388	012395	58	
2	009813	009820	009827	009833	009840	009847	57	2	012403	012410	012418	012426	012433	012441	57	
3	009854	009861	009867	009874	009881	009888	56	3	012449	012456	012464	012471	012479	012487	56	
4	009895	009901	009908	009915	009922	009929	55	4	012494	012502	012510	012517	012525	012533	55	
5	009935	009942	009949	009956	009963	009970	54	5	012540	012548	012556	012563	012571	012579	54	
6	009976	009983	009990	009997	010004	010011	53	6	012586	012594	012602	012609	012617	012625	53	
7	010017	010024	010031	010038	010045	010052	52	7	012632	012640	012648	012655	012663	012671	52	
8	010058	010065	010072	010079	010086	010093	51	8	012678	012686	012694	012701	012709	012717	51	
9	010100	010107	010113	010120	010127	010134	50	9	012725	012732	012740	012748	012755	012763	50	
10	010141	010148	010155	010162	010169	010175	49	10	012771	012779	012786	012794	012802	012810	49	
11	010182	010189	010196	010203	010210	010217	48	11	012817	012825	012833	012840	012848	012856	48	
12	010224	010231	010238	010245	010252	010258	47	12	012864	012871	012879	012887	012895	012903	47	
13	010265	010272	010279	010286	010293	010300	46	13	012910	012918	012926	012934	012941	012949	46	
14	010307	010314	010321	010328	010335	010342	45	14	012957	012965	012972	012980	012988	012996	45	
15	010349	010356	010363	010369	010376	010383	44	15	013004	013011	013019	013027	013035	013043	44	
16	010390	010397	010404	010411	010418	010425	43	16	013050	013058	013066	013074	013082	013089	43	
17	010432	010439	010446	010453	010460	010467	42	17	013097	013105	013113	013121	013129	013136	42	
18	010474	010481	010488	010495	010502	010509	41	18	013144	013152	013160	013168	013176	013183	41	
19	010516	010523	010530	010537	010544	010551	40	19	013191	013199	013207	013215	013223	013231	40	
20	010558	010565	010572	010579	010586	010594	39	20	013238	013246	013254	013262	013270	013278	39	
21	010601	010608	010615	010622	010629	010636	38	21	013286	013294	013301	013309	013317	013325	38	
22	010643	010650	010657	010664	010671	010678	37	22	013333	013341	013349	013357	013365	013372	37	
23	010685	010692	010699	010706	010714	010721	36	23	013380	013388	013396	013404	013412	013420	36	
24	010728	010735	010742	010749	010756	010763	35	24	013428	013436	013444	013452	013460	013468	35	
25	010770	010777	010784	010792	010799	010806	34	25	013475	013483	013491	013499	013507	013515	34	
26	010813	010820	010827	010834	010841	010848	33	26	013523	013531	013539	013547	013555	013563	33	
27	010855	010863	010870	010877	010884	010891	32	27	013571	013579	013587	013595	013603	013611	32	
28	010898	010905	010913	010920	010927	010934	31	28	013619	013627	013634	013642	013650	013658	31	
29	010941	010948	010955	010963	010970	010977	30	29	013666	013674	013682	013690	013698	013706	30	
30	010984	010991	010998	011006	011013	011020	29	30	013714	013722	013730	013738	013746	013754	29	
31	011027	011034	011042	011049	011056	011063	28	31	013762	013770	013778	013787	013795	013803	28	
32	011070	011077	011085	011092	011099	011106	27	32	013811	013819	013827	013835	013843	013851	27	
33	011114	011121	011128	011135	011142	011150	26	33	013859	013867	013875	013883	013891	013899	26	
34	011157	011164	011171	011178	011186	011193	25	34	013907	013915	013923	013931	013939	013947	25	
35	011200	011207	011215	011222	011229	011236	24	35	013955	013964	013972	013980	013988	013996	24	
36	011244	011251	011258	011265	011273	011280	23	36	014004	014012	014020	014028	014036	014044	23	
37	011287	011294	011302	011309	011316	011324	22	37	014053	014061	014069	014077	014085	014093	22	
38	011331	011338	011345	011353	011360	011367	21	38	014101	014109	014117	014125	014134	014142	21	
39	011374	011382	011389	011396	011404	011411	20	39	014150	014158	014166	014174	014182	014191	20	
40	011418	011426	011433	011440	011448	011455	19	40	014199	014207	014215	014223	014231	014239	19	
41	011462	011469	011477	011484	011491	011499	18	41	014248	014256	014264	014272	014280	014288	18	
42	011506	011513	011521	011528	011535	011543	17	42	014297	014305	014313	014321	014329	014337	17	
43	011550	011558	011565	011572	011580	011587	16	43	014346	014354	014362	014370	014378	014387	16	
44	011594	011602	011609	011616	011624	011631	15	44	014395	014403	014411	014419	014428	014436	15	
45	011638	011646	011653	011661	011668	011675	14	45	014444	014452	014460	014469	014477	014485	14	
46	011683	011690	011698	011705	011712	011720	13	46	014493	014501	014510	014518	014526	014534	13	
47	011727	011735	011742	011749	011757	011764	12	47	014543	014551	014559	014567	014576	014584	12	
48	011772	011779	011786	011794	011801	011809	11	48	014592	014600	014609	014617	014625	014633	11	
49	011816	011824	011831	011838	011846	011853	10	49	014642	014650	014658	014666	014675	014683	10	
50	011861	011868	011876	011883	011891	011898	9	50	014691	014700	014708	014716	014724	014733	9	
51	011906	011913	011920	011928	011935	011943	8	51	014741	014749	014758	014766	014774	014783	8	
52	011950	011958	011965	011973	011980	011988	7	52	014791	014799	014807	014816	014824	014832	7	
53	011995	012003	012010	012018	012025	012033	6	53	014841	014849	014857	014866	014874	014882	6	
54	012040	012048	012055	012063	012070	012078	5	54	014891	014899	014907	014916	014924	014932	5	
55	012085	012093	012100	012108	012115	012123	4	55	014941	014949	014957	014966	014974	014983	4	
56	012130	012138	012145	012153	012160	012168	3	56	014991	014999	015008	015016	015024	015033	3	
57	012176	012183	012191	012198	012206	012213	2	57	015041	015049	015058	015066	015075	015083	2	
58	012221	012228	012236	012243	012251	012259	1	58	015091	015099	015108	015117	015125	015133	1	
59	012266	012274	012281	012289	012296	012304	0	59	015142	015150	015159	015167	015175	015184	0	
Minutes	60"	50"	40"	30"	20"	10"	Minutes	Minutes	60"	50"	40"	30"	20"	10"	Minutes	
Co-versed Sine of 81 degrees, or Versed Sine Supplement of 171 degrees.							Co-versed Sine of 80 degrees, or Versed Sine Supplement of 170 degrees.									
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"									
parts. } 1 1 2 3 4 4 5 6 6							parts. } 1 2 2 3 4 5 6 6 7									

NATURAL VERSED SINES.

Natural Versed Sine of 10 degrees, or Co-versed Sine of 100 degrees.													Natural Versed Sine of 11 degrees, or Co-versed Sine of 101 degrees.														
Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"	20"	30"	40"	50"
0	015192	015201	015209	015218	015226	015234	59	0	018373	018382	018391	018401	018410	59	0	018373	018382	018391	018401	018410	59	0	018373	018382	018391	018401	018410
1	015243	015251	015260	015268	015277	015285	58	1	018428	018438	018447	018456	018465	58	1	018428	018438	018447	018456	018465	58	1	018428	018438	018447	018456	018465
2	015293	015302	015310	015319	015327	015335	57	2	018484	018493	018503	018512	018521	57	2	018484	018493	018503	018512	018521	57	2	018484	018493	018503	018512	018521
3	015344	015353	015361	015370	015378	015386	56	3	018540	018549	018558	018568	018577	56	3	018540	018549	018558	018568	018577	56	3	018540	018549	018558	018568	018577
4	015395	015403	015412	015420	015429	015437	55	4	018595	018605	018614	018623	018633	55	4	018595	018605	018614	018623	018633	55	4	018595	018605	018614	018623	018633
5	015446	015454	015463	015471	015480	015488	54	5	018651	018661	018670	018679	018689	54	5	018651	018661	018670	018679	018689	54	5	018651	018661	018670	018679	018689
6	015497	015505	015514	015522	015531	015539	53	6	018707	018717	018726	018735	018745	53	6	018707	018717	018726	018735	018745	53	6	018707	018717	018726	018735	018745
7	015548	015556	015565	015573	015582	015590	52	7	018763	018773	018782	018791	018801	52	7	018763	018773	018782	018791	018801	52	7	018763	018773	018782	018791	018801
8	015599	015607	015616	015625	015633	015642	51	8	018819	018829	018838	018848	018857	51	8	018819	018829	018838	018848	018857	51	8	018819	018829	018838	018848	018857
9	015650	015659	015667	015676	015684	015693	50	9	018876	018885	018894	018904	018913	50	9	018876	018885	018894	018904	018913	50	9	018876	018885	018894	018904	018913
10	015702	015710	015719	015727	015736	015744	49	10	018932	018941	018951	018960	018970	49	10	018932	018941	018951	018960	018970	49	10	018932	018941	018951	018960	018970
11	015753	015761	015770	015779	015787	015796	48	11	018988	018998	019007	019017	019026	48	11	018988	018998	019007	019017	019026	48	11	018988	018998	019007	019017	019026
12	015804	015813	015822	015830	015839	015847	47	12	019045	019054	019064	019073	019082	47	12	019045	019054	019064	019073	019082	47	12	019045	019054	019064	019073	019082
13	015856	015865	015873	015882	015890	015899	46	13	019101	019111	019120	019130	019139	46	13	019101	019111	019120	019130	019139	46	13	019101	019111	019120	019130	019139
14	015908	015916	015925	015933	015942	015951	45	14	019158	019167	019177	019186	019196	45	14	019158	019167	019177	019186	019196	45	14	019158	019167	019177	019186	019196
15	015959	015968	015977	015985	015994	016002	44	15	019215	019224	019234	019243	019253	44	15	019215	019224	019234	019243	019253	44	15	019215	019224	019234	019243	019253
16	016011	016020	016028	016037	016046	016054	43	16	019272	019281	019290	019300	019309	43	16	019272	019281	019290	019300	019309	43	16	019272	019281	019290	019300	019309
17	016063	016072	016080	016089	016098	016106	42	17	019328	019338	019347	019357	019366	42	17	019328	019338	019347	019357	019366	42	17	019328	019338	019347	019357	019366
18	016115	016124	016132	016141	016150	016158	41	18	019385	019395	019404	019414	019423	41	18	019385	019395	019404	019414	019423	41	18	019385	019395	019404	019414	019423
19	016167	016176	016184	016193	016202	016210	40	19	019442	019452	019461	019471	019480	40	19	019442	019452	019461	019471	019480	40	19	019442	019452	019461	019471	019480
20	016219	016228	016237	016245	016254	016263	39	20	019500	019509	019519	019528	019538	39	20	019500	019509	019519	019528	019538	39	20	019500	019509	019519	019528	019538
21	016271	016280	016289	016298	016306	016315	38	21	019557	019566	019576	019585	019595	38	21	019557	019566	019576	019585	019595	38	21	019557	019566	019576	019585	019595
22	016324	016332	016341	016350	016359	016367	37	22	019614	019624	019633	019643	019652	37	22	019614	019624	019633	019643	019652	37	22	019614	019624	019633	019643	019652
23	016376	016385	016394	016402	016411	016420	36	23	019671	019681	019691	019700	019710	36	23	019671	019681	019691	019700	019710	36	23	019671	019681	019691	019700	019710
24	016429	016437	016446	016455	016464	016472	35	24	019729	019738	019748	019757	019767	35	24	019729	019738	019748	019757	019767	35	24	019729	019738	019748	019757	019767
25	016481	016490	016499	016507	016516	016525	34	25	019786	019796	019806	019815	019825	34	25	019786	019796	019806	019815	019825	34	25	019786	019796	019806	019815	019825
26	016534	016542	016551	016560	016569	016578	33	26	019844	019854	019863	019873	019882	33	26	019844	019854	019863	019873	019882	33	26	019844	019854	019863	019873	019882
27	016586	016595	016604	016613	016622	016630	32	27	019902	019911	019921	019931	019940	32	27	019902	019911	019921	019931	019940	32	27	019902	019911	019921	019931	019940
28	016639	016648	016657	016666	016674	016683	31	28	019959	019969	019979	019988	019998	31	28	019959	019969	019979	019988	019998	31	28	019959	019969	019979	019988	019998
29	016692	016701	016710	016719	016727	016736	30	29	020017	020027	020037	020046	020056	30	29	020017	020027	020037	020046	020056	30	29	020017	020027	020037	020046	020056
30	016745	016754	016763	016772	016780	016789	29	30	020075	020085	020095	020104	020114	29	30	020075	020085	020095	020104	020114	29	30	020075	020085	020095	020104	020114
31	016798	016807	016816	016825	016834	016842	28	31	020133	020143	020153	020162	020172	28	31	020133	020143	020153	020162	020172	28	31	020133	020143	020153	020162	020172
32	016851	016860	016869	016878	016887	016896	27	32	020191	020201	020211	020221	020230	27	32	020191	020201	020211	020221	020230	27	32	020191	020201	020211	020221	020230
33	016904	016913	016922	016931	016940	016949	26	33	020250	020259	020269	020279	020288	26	33	020250	020259	020269	020279	020288	26	33	020250	020259	020269	020279	020288
34	016958	016967	016976	016985	016993	017002	25	34	020308	020318	020327	020337	020347	25	34	020308	020318	020327	020337	020347	25	34	020308	020318	020327	020337	020347
35	017011	017020	017029	017038	017047	017056	24	35	020366	020376	020386	020396	020405	24	35	020366	020376	020386	020396	020405	24	35	020366	020376	020386	020396	020405
36	017065	017074	017082	017091	017100	017109	23	36	020425	020435	020444	020454	020464	23	36	020425	020435	020444	020454	020464	23	36	020425	020435	020444	020454	020464
37	017118	017127	017136	017145	017154	017163	22	37	020483	020493	020503	020513	020522	22	37	020483	020493	020503	020513	020522	22	37	020483	020493	020503	020513	020522
38	017172	017181	017190	017199	017208	017217	21																				

NATURAL VERSED SINES.

Natural Versed Sine of 14 degrees, or Co-versed Sine of 104 degrees.							Minutes		
0"	10"	20"	30"	40"	50"		Minutes		
0	029704	029716	029728	029739	029751	029763	59		
1	029775	029786	029798	029810	029822	029833	58		
2	029845	029857	029869	029880	029892	029904	57		
3	029916	029928	029939	029951	029963	029975	56		
4	029986	029998	030010	030022	030034	030045	55		
5	030057	030069	030081	030093	030104	030116	54		
6	030128	030140	030152	030163	030175	030187	53		
7	030199	030211	030223	030234	030246	030258	52		
8	030270	030282	030294	030305	030317	030329	51		
9	030341	030353	030365	030377	030388	030400	50		
10	030412	030424	030436	030448	030460	030471	49		
11	030483	030495	030507	030519	030531	030543	48		
12	030555	030567	030578	030590	030602	030614	47		
13	030626	030638	030650	030662	030674	030686	46		
14	030698	030709	030721	030733	030745	030757	45		
15	030769	030781	030793	030805	030817	030829	44		
16	030841	030853	030865	030877	030889	030901	43		
17	030912	030924	030936	030948	030960	030972	42		
18	030984	030996	031008	031020	031032	031044	41		
19	031056	031068	031080	031092	031104	031116	40		
20	031128	031140	031152	031164	031176	031188	39		
21	031200	031212	031224	031236	031248	031260	38		
22	031272	031284	031296	031308	031320	031332	37		
23	031344	031357	031369	031381	031393	031405	36		
24	031417	031429	031441	031453	031465	031477	35		
25	031489	031501	031513	031525	031538	031550	34		
26	031562	031574	031586	031598	031610	031622	33		
27	031634	031646	031658	031671	031683	031695	32		
28	031707	031719	031731	031743	031755	031767	31		
29	031780	031792	031804	031816	031828	031840	30		
30	031852	031864	031877	031889	031901	031913	29		
31	031925	031937	031950	031962	031974	031986	28		
32	031998	032010	032023	032035	032047	032059	27		
33	032071	032083	032096	032108	032120	032132	26		
34	032144	032157	032169	032181	032193	032205	25		
35	032218	032230	032242	032254	032266	032279	24		
36	032291	032303	032315	032328	032340	032352	23		
37	032364	032376	032389	032401	032413	032425	22		
38	032438	032450	032462	032474	032487	032499	21		
39	032511	032523	032536	032548	032560	032573	20		
40	032585	032597	032609	032622	032634	032646	19		
41	032658	032671	032683	032695	032708	032720	18		
42	032732	032745	032757	032769	032781	032794	17		
43	032806	032818	032831	032843	032855	032868	16		
44	032880	032892	032905	032917	032929	032942	15		
45	032954	032966	032979	032991	033003	033016	14		
46	033028	033041	033053	033065	033078	033090	13		
47	033102	033115	033127	033139	033152	033164	12		
48	033177	033189	033201	033214	033226	033239	11		
49	033251	033263	033276	033288	033301	033313	10		
50	033325	033338	033350	033363	033375	033387	9		
51	033400	033412	033424	033437	033450	033462	8		
52	033474	033487	033499	033512	033524	033537	7		
53	033549	033562	033574	033587	033599	033611	6		
54	033624	033636	033649	033661	033674	033686	5		
55	033699	033711	033724	033736	033749	033761	4		
56	033774	033786	033799	033811	033824	033836	3		
57	033849	033861	033874	033886	033899	033911	2		
58	033924	033936	033949	033961	033974	033986	1		
59	033999	034011	034024	034037	034049	034062	0		
60 50 40 30 20 10							Minutes		
Co-versed Sine of 75 degrees, or Versed Sine Supplement of 165 degrees.							Minutes		
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	1	2	4	5	6	7	8	10	11
0	034074	034087	034099	034112	034124	034137	59		
1	034150	034162	034175	034187	034200	034212	58		
2	034225	034237	034250	034263	034275	034288	57		
3	034300	034313	034326	034338	034351	034363	56		
4	034376	034389	034401	034414	034426	034439	55		
5	034452	034464	034477	034489	034502	034515	54		
6	034527	034540	034553	034565	034578	034591	53		
7	034603	034616	034628	034641	034654	034666	52		
8	034679	034692	034704	034717	034730	034742	51		
9	034755	034768	034780	034793	034806	034818	50		
10	034831	034844	034857	034869	034882	034895	49		
11	034907	034920	034933	034945	034958	034971	48		
12	034984	034996	035009	035022	035034	035047	47		
13	035060	035073	035085	035098	035111	035123	46		
14	035136	035149	035162	035174	035187	035200	45		
15	035213	035225	035238	035251	035264	035276	44		
16	035289	035302	035315	035328	035340	035353	43		
17	035366	035379	035391	035404	035417	035430	42		
18	035443	035455	035468	035481	035494	035507	41		
19	035519	035532	035545	035558	035571	035583	40		
20	035596	035609	035622	035635	035648	035660	39		
21	035673	035686	035699	035712	035725	035737	38		
22	035750	035763	035776	035789	035802	035815	37		
23	035827	035840	035853	035866	035879	035892	36		
24	035905	035917	035930	035943	035955	035968	35		
25	035982	035995	036008	036021	036033	036046	34		
26	036059	036072	036085	036098	036111	036124	33		
27	036137	036150	036163	036175	036188	036201	32		
28	036214	036227	036240	036253	036266	036279	31		
29	036292	036305	036318	036331	036344	036357	30		
30	036370	036383	036395	036408	036421	036434	29		
31	036447	036460	036473	036486	036499	036512	28		
32	036525	036538	036551	036564	036577	036590	27		
33	036603	036616	036629	036642	036655	036668	26		
34	036681	036694	036707	036720	036733	036746	25		
35	036759	036772	036785	036798	036811	036824	24		
36	036837	036850	036864	036877	036890	036903	23		
37	036916	036929	036942	036955	036968	036981	22		
38	036994	037007	037020	037033	037046	037059	21		
39	037072	037086	037099	037112	037125	037138	20		
40	037151	037164	037177	037190	037203	037216	19		
41	037230	037243	037256	037269	037282	037295	18		
42	037308	037321	037334	037347	037360	037374	17		
43	037387	037400	037413	037426	037440	037453	16		
44	037466	037479	037492	037505	037518	037532	15		
45	037545	037558	037571	037584	037597	037611	14		
46	037624	037637	037650	037663	037676	037690	13		
47	037703	037716	037729	037742	037755	037769	12		
48	037782	037795	037808	037822	037835	037848	11		
49	037861	037874	037888	037901	037914	037927	10		
50	037941	037954	037967	037980	037994	038007	9		
51	038020	038033	038046	038060	038073	038086	8		
52	038099	038113	038126	038139	038153	038166	7		
53	038179	038192	038206	038219	038232	038245	6		
54	038259	038272	038285	038299	038312	038325	5		
55	038338	038352	038365	038378	038392	038405	4		
56	038418	038432	038445	038458	038471	038485	3		
57	038498	038511	038525	038538	038551	038565	2		
58	038578	038591	038605	038618	038631	038645	1		
59	038658	038672	038685	038698	038711	038725	0		
60 50 40 30 20 10							Minutes		
Co-versed Sine of 74 degrees, or Versed Sine Supplement of 164 degrees.							Minutes		
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	1	3	4	5	6	8	9	10	12

NATURAL VERSED SINES.

Natural Versed Sine of 16 degrees, or Co-versed sine of 106 degrees.											
Minutes	0'	10'	20'	30'	40'	50'	Minutes	0'	10'	20'	30'
0	0.38738	0.38752	0.38765	0.38778	0.38792	0.38805	59	0.43695	0.43709	0.43724	0.43738
1	0.38819	0.38832	0.38845	0.38859	0.38872	0.38885	58	0.43780	0.43795	0.43809	0.43823
2	0.38899	0.38912	0.38926	0.38939	0.38952	0.38966	57	0.43866	0.43880	0.43894	0.43908
3	0.38979	0.38993	0.39006	0.39019	0.39033	0.39046	56	0.43951	0.43965	0.43979	0.43993
4	0.39060	0.39073	0.39087	0.39100	0.39113	0.39127	55	0.44036	0.44050	0.44065	0.44079
5	0.39140	0.39154	0.39167	0.39181	0.39194	0.39207	54	0.44121	0.44136	0.44150	0.44164
6	0.39221	0.39234	0.39248	0.39261	0.39275	0.39288	53	0.44207	0.44222	0.44236	0.44250
7	0.39302	0.39315	0.39328	0.39342	0.39355	0.39369	52	0.44293	0.44307	0.44321	0.44335
8	0.39382	0.39396	0.39409	0.39423	0.39436	0.39450	51	0.44378	0.44392	0.44407	0.44421
9	0.39463	0.39477	0.39490	0.39504	0.39517	0.39531	50	0.44464	0.44478	0.44493	0.44507
10	0.39544	0.39558	0.39571	0.39585	0.39598	0.39612	49	0.44550	0.44564	0.44578	0.44593
11	0.39625	0.39639	0.39652	0.39666	0.39679	0.39693	48	0.44636	0.44650	0.44664	0.44679
12	0.39706	0.39720	0.39733	0.39747	0.39760	0.39774	47	0.44722	0.44736	0.44750	0.44765
13	0.39788	0.39801	0.39815	0.39828	0.39842	0.39855	46	0.44808	0.44822	0.44836	0.44851
14	0.39869	0.39882	0.39896	0.39909	0.39923	0.39937	45	0.44894	0.44908	0.44923	0.44937
15	0.39950	0.39964	0.39977	0.39991	0.40004	0.40018	44	0.44980	0.44994	0.45009	0.45023
16	0.40032	0.40045	0.40059	0.40072	0.40086	0.40100	43	0.45066	0.45081	0.45095	0.45110
17	0.40113	0.40127	0.40140	0.40154	0.40167	0.40181	42	0.45153	0.45167	0.45182	0.45196
18	0.40195	0.40208	0.40222	0.40236	0.40249	0.40263	41	0.45239	0.45254	0.45268	0.45283
19	0.40276	0.40290	0.40304	0.40317	0.40331	0.40345	40	0.45326	0.45340	0.45355	0.45369
20	0.40358	0.40372	0.40385	0.40399	0.40413	0.40426	39	0.45412	0.45427	0.45441	0.45456
21	0.40440	0.40454	0.40467	0.40481	0.40495	0.40508	38	0.45499	0.45514	0.45528	0.45543
22	0.40522	0.40536	0.40549	0.40563	0.40577	0.40590	37	0.45586	0.45600	0.45615	0.45629
23	0.40604	0.40618	0.40631	0.40645	0.40659	0.40672	36	0.45673	0.45687	0.45702	0.45716
24	0.40686	0.40700	0.40713	0.40727	0.40741	0.40754	35	0.45760	0.45774	0.45789	0.45803
25	0.40768	0.40782	0.40796	0.40809	0.40823	0.40837	34	0.45847	0.45861	0.45876	0.45890
26	0.40850	0.40864	0.40878	0.40892	0.40905	0.40919	33	0.45934	0.45948	0.45963	0.45977
27	0.40933	0.40947	0.40960	0.40974	0.40988	0.41001	32	0.46021	0.46036	0.46050	0.46065
28	0.41015	0.41029	0.41043	0.41056	0.41070	0.41084	31	0.46108	0.46123	0.46137	0.46152
29	0.41098	0.41111	0.41125	0.41139	0.41153	0.41166	30	0.46196	0.46210	0.46225	0.46239
30	0.41180	0.41194	0.41208	0.41222	0.41235	0.41249	29	0.46283	0.46298	0.46312	0.46327
31	0.41263	0.41277	0.41290	0.41304	0.41318	0.41332	28	0.46371	0.46385	0.46400	0.46414
32	0.41346	0.41359	0.41373	0.41387	0.41401	0.41415	27	0.46458	0.46473	0.46487	0.46502
33	0.41428	0.41442	0.41456	0.41470	0.41484	0.41498	26	0.46546	0.46560	0.46575	0.46590
34	0.41511	0.41525	0.41539	0.41553	0.41567	0.41581	25	0.46634	0.46648	0.46663	0.46677
35	0.41594	0.41608	0.41622	0.41636	0.41650	0.41664	24	0.46721	0.46736	0.46751	0.46765
36	0.41677	0.41691	0.41705	0.41719	0.41733	0.41747	23	0.46809	0.46824	0.46839	0.46853
37	0.41761	0.41774	0.41788	0.41802	0.41816	0.41830	22	0.46897	0.46912	0.46927	0.46941
38	0.41844	0.41858	0.41872	0.41885	0.41899	0.41913	21	0.46985	0.46999	0.47015	0.47029
39	0.41927	0.41941	0.41955	0.41969	0.41983	0.41997	20	0.47074	0.47088	0.47103	0.47118
40	0.42010	0.42024	0.42038	0.42052	0.42066	0.42080	19	0.47162	0.47177	0.47191	0.47206
41	0.42094	0.42108	0.42122	0.42136	0.42150	0.42164	18	0.47250	0.47265	0.47280	0.47294
42	0.42178	0.42191	0.42205	0.42219	0.42233	0.42247	17	0.47339	0.47353	0.47368	0.47383
43	0.42261	0.42275	0.42289	0.42303	0.42317	0.42331	16	0.47427	0.47442	0.47457	0.47471
44	0.42345	0.42359	0.42373	0.42387	0.42401	0.42415	15	0.47516	0.47530	0.47545	0.47560
45	0.42429	0.42443	0.42457	0.42471	0.42485	0.42499	14	0.47604	0.47619	0.47634	0.47649
46	0.42513	0.42526	0.42540	0.42554	0.42568	0.42582	13	0.47693	0.47708	0.47723	0.47737
47	0.42596	0.42610	0.42624	0.42638	0.42652	0.42666	12	0.47782	0.47797	0.47811	0.47826
48	0.42681	0.42695	0.42709	0.42723	0.42737	0.42751	11	0.47871	0.47885	0.47900	0.47915
49	0.42765	0.42779	0.42793	0.42807	0.42821	0.42835	10	0.47960	0.47974	0.47989	0.48004
50	0.42849	0.42863	0.42877	0.42891	0.42905	0.42919	9	0.48049	0.48063	0.48078	0.48093
51	0.42933	0.42947	0.42961	0.42975	0.42989	0.43003	8	0.48138	0.48153	0.48167	0.48182
52	0.43017	0.43031	0.43046	0.43060	0.43074	0.43088	7	0.48227	0.48242	0.48257	0.48272
53	0.43102	0.43116	0.43130	0.43144	0.43158	0.43172	6	0.48316	0.48331	0.48346	0.48361
54	0.43186	0.43200	0.43215	0.43229	0.43243	0.43257	5	0.48406	0.48420	0.48435	0.48450
55	0.43271	0.43285	0.43299	0.43313	0.43327	0.43342	4	0.48495	0.48510	0.48525	0.48540
56	0.43356	0.43370	0.43384	0.43398	0.43412	0.43426	3	0.48585	0.48599	0.48614	0.48629
57	0.43440	0.43454	0.43469	0.43483	0.43497	0.43511	2	0.48674	0.48689	0.48704	0.48719
58	0.43525	0.43539	0.43554	0.43568	0.43582	0.43596	1	0.48764	0.48779	0.48794	0.48809
59	0.43610	0.43624	0.43639	0.43653	0.43667	0.43681	0	0.48844	0.48859	0.48874	0.48889
Minutes	60'	50'	40'	30'	20'	10'	Minutes	60'	50'	40'	30'
Co-versed Sine of 73 degrees, or Versed Sine Supplement of 163 degrees.											
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"	1	2	3	4	5	6	7	8	9	10	11
parts. { 1 3 4 6 7 8 10 11 13	1	3	4	6	7	8	10	11	13		

NATURAL VERSED SINES.

Natural Versed Sine of 18 degrees, or Co-versed Sine of 108 degrees.							Natural Versed Sine of 19 degrees, or Co-versed Sine of 109 degrees.							
Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"	20"	30"	40"	50"	Minutes
0	048943	048958	048973	048988	049003	049018	59	054481	054497	054513	054529	054545	054560	59
1	049033	049048	049063	049078	049093	049108	58	054576	054592	054608	054624	054639	054655	58
2	049123	049138	049153	049168	049183	049198	57	054671	054687	054703	054718	054734	054750	57
3	049214	049229	049244	049259	049274	049289	56	054766	054782	054798	054813	054829	054845	56
4	049304	049319	049334	049349	049364	049379	55	054861	054877	054893	054908	054924	054940	55
5	049394	049409	049424	049439	049454	049469	54	054956	054972	054988	055004	055019	055035	54
6	049484	049499	049514	049529	049545	049560	53	055051	055067	055083	055099	055115	055130	53
7	049575	049590	049605	049620	049635	049650	52	055146	055162	055178	055194	055210	055226	52
8	049665	049680	049695	049710	049726	049741	51	055242	055258	055273	055289	055305	055321	51
9	049756	049771	049786	049801	049816	049831	50	055337	055353	055369	055385	055401	055417	50
10	049846	049862	049877	049892	049907	049922	49	055432	055448	055464	055480	055496	055512	49
11	049937	049952	049967	049982	049998	050013	48	055528	055544	055560	055576	055592	055608	48
12	050028	050043	050058	050073	050089	050104	47	055624	055640	055656	055671	055687	055703	47
13	050119	050134	050149	050164	050179	050195	46	055719	055735	055751	055767	055783	055799	46
14	050210	050225	050240	050255	050271	050286	45	055815	055831	055847	055863	055879	055895	45
15	050301	050316	050331	050346	050362	050377	44	055911	055927	055943	055959	055975	055991	44
16	050392	050407	050422	050438	050453	050468	43	056007	056023	056039	056055	056071	056087	43
17	050483	050498	050514	050529	050544	050559	42	056103	056119	056135	056151	056167	056183	42
18	050575	050590	050605	050620	050635	050651	41	056199	056215	056231	056247	056263	056279	41
19	050666	050681	050696	050712	050727	050742	40	056295	056311	056327	056343	056359	056375	40
20	050757	050773	050788	050803	050818	050834	39	056391	056408	056424	056440	056456	056472	39
21	050849	050864	050879	050895	050910	050925	38	056488	056504	056520	056536	056552	056568	38
22	050941	050956	050971	050986	051002	051017	37	056584	056600	056616	056632	056649	056665	37
23	051032	051048	051063	051078	051093	051109	36	056681	056697	056713	056729	056745	056761	36
24	051124	051139	051155	051170	051185	051201	35	056777	056793	056810	056826	056842	056858	35
25	051216	051231	051246	051262	051277	051292	34	056874	056890	056906	056922	056938	056954	34
26	051308	051323	051338	051354	051369	051384	33	056971	056987	057003	057019	057035	057051	33
27	051400	051415	051430	051446	051461	051477	32	057068	057084	057100	057116	057132	057148	32
28	051492	051507	051523	051538	051553	051569	31	057164	057181	057197	057213	057229	057245	31
29	051584	051599	051615	051630	051646	051661	30	057261	057278	057294	057310	057326	057342	30
30	051676	051692	051707	051723	051738	051753	29	057359	057375	057391	057407	057423	057439	29
31	051769	051784	051799	051815	051830	051846	28	057456	057472	057488	057504	057520	057537	28
32	051861	051877	051892	051907	051923	051938	27	057553	057569	057585	057602	057618	057634	27
33	051954	051969	051984	052000	052015	052031	26	057650	057666	057683	057699	057715	057731	26
34	052046	052062	052077	052093	052108	052123	25	057748	057764	057780	057796	057813	057829	25
35	052139	052154	052170	052185	052201	052216	24	057845	057861	057878	057894	057910	057926	24
36	052232	052247	052263	052278	052293	052309	23	057943	057959	057975	057991	058008	058024	23
37	052324	052340	052355	052371	052386	052402	22	058040	058056	058073	058089	058105	058122	22
38	052417	052433	052448	052464	052479	052495	21	058138	058154	058170	058187	058203	058219	21
39	052510	052526	052541	052557	052572	052588	20	058236	058252	058268	058285	058301	058317	20
40	052603	052619	052634	052650	052665	052681	19	058334	058350	058366	058382	058399	058415	19
41	052696	052712	052728	052743	052759	052774	18	058431	058448	058464	058480	058497	058513	18
42	052790	052805	052821	052836	052852	052867	17	058529	058546	058562	058578	058595	058611	17
43	052883	052899	052914	052930	052945	052961	16	058628	058644	058660	058677	058693	058709	16
44	052976	052992	053008	053023	053039	053054	15	058726	058742	058758	058775	058791	058808	15
45	053070	053085	053101	053117	053132	053148	14	058824	058840	058857	058873	058890	058906	14
46	053163	053179	053195	053210	053226	053241	13	058922	058939	058955	058972	058988	059004	13
47	053257	053273	053288	053304	053319	053335	12	059021	059037	059054	059070	059086	059103	12
48	053351	053366	053382	053398	053413	053429	11	059119	059136	059152	059169	059185	059201	11
49	053445	053460	053476	053491	053507	053523	10	059218	059234	059251	059267	059284	059300	10
50	053538	053554	053570	053585	053601	053617	9	059316	059333	059349	059366	059382	059399	9
51	053632	053648	053664	053679	053695	053711	8	059415	059432	059448	059465	059481	059498	8
52	053726	053742	053758	053773	053789	053805	7	059514	059530	059547	059563	059580	059596	7
53	053820	053836	053852	053868	053883	053899	6	059613	059629	059646	059662	059679	059695	6
54	053915	053930	053946	053962	053977	053993	5	059712	059728	059745	059761	059778	059794	5
55	054009	054025	054040	054056	054072	054088	4	059811	059827	059844	059860	059877	059894	4
56	054103	054119	054135	054150	054166	054182	3	059910	059927	059943	059960	059977	059993	3
57	054198	054213	054229	054245	054261	054276	2	060009	060026	060042	060059	060075	060092	2
58	054292	054308	054324	054339	054355	054371	1	060109	060125	060142	060158	060175	060191	1
59	054387	054403	054418	054434	054450	054466	0	060208	060224	060241	060258	060274	060291	0
Minutes	60"	50"	40"	30"	20"	10"	Minutes	60"	50"	40"	30"	20"	10"	Minutes
Co-versed Sine of 71 degrees, or Versed Sine Supplement of 161 degrees.							Co-versed Sine of 70 degrees, or Versed Sine Supplement of 160 degrees.							
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							
parts. } 2 3 5 6 8 9 11 12 14							parts. } 2 3 5 6 8 10 11 13 15							

NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 20 degrees, or Co-versed Sine of 110 degrees.						Minutes		
	0°	10°	20°	30°	40°	50°			
0	060307	060324	060341	060357	060374	060390	59		
1	060407	060424	060440	060457	060473	060490	58		
2	060507	060523	060540	060556	060573	060590	57		
3	060606	060623	060639	060656	060673	060689	56		
4	060706	060723	060739	060756	060773	060789	55		
5	060806	060822	060839	060856	060873	060889	54		
6	060906	060922	060939	060956	060972	060989	53		
7	061006	061022	061039	061056	061072	061089	52		
8	061106	061123	061139	061156	061173	061189	51		
9	061206	061223	061239	061256	061273	061290	50		
10	061306	061323	061340	061356	061373	061390	49		
11	061407	061423	061440	061457	061474	061490	48		
12	061507	061524	061540	061557	061574	061591	47		
13	061607	061624	061641	061658	061674	061691	46		
14	061708	061725	061742	061758	061775	061792	45		
15	061809	061825	061843	061859	061876	061893	44		
16	061909	061926	061943	061960	061977	061993	43		
17	062010	062027	062044	062061	062077	062094	42		
18	062111	062128	062145	062162	062178	062195	41		
19	062212	062229	062246	062263	062279	062296	40		
20	062313	062330	062347	062364	062380	062397	39		
21	062414	062431	062448	062465	062482	062499	38		
22	062515	062532	062549	062566	062583	062600	37		
23	062617	062634	062650	062667	062684	062701	36		
24	062718	062735	062752	062769	062786	062803	35		
25	062819	062836	062853	062870	062887	062904	34		
26	062921	062938	062955	062972	062989	063006	33		
27	063023	063039	063056	063073	063090	063107	32		
28	063124	063141	063158	063175	063192	063209	31		
29	063226	063243	063260	063277	063294	063311	30		
30	063328	063345	063362	063379	063396	063413	29		
31	063430	063447	063464	063481	063498	063515	28		
32	063532	063549	063566	063583	063600	063617	27		
33	063634	063651	063668	063685	063702	063719	26		
34	063736	063753	063770	063787	063804	063821	25		
35	063838	063855	063872	063889	063906	063923	24		
36	063940	063958	063975	063992	064009	064026	23		
37	064043	064060	064077	064094	064111	064128	22		
38	064145	064162	064179	064197	064214	064231	21		
39	064248	064265	064282	064299	064316	064333	20		
40	064350	064368	064385	064402	064419	064436	19		
41	064453	064470	064487	064505	064522	064539	18		
42	064556	064573	064590	064607	064625	064642	17		
43	064659	064676	064693	064710	064727	064745	16		
44	064762	064779	064796	064813	064830	064848	15		
45	064865	064882	064899	064916	064934	064951	14		
46	064968	064985	065002	065019	065037	065054	13		
47	065071	065088	065105	065123	065140	065157	12		
48	065174	065192	065209	065226	065243	065260	11		
49	065278	065295	065312	065329	065347	065364	10		
50	065381	065398	065416	065433	065450	065467	9		
51	065485	065502	065519	065536	065554	065571	8		
52	065588	065605	065623	065640	065657	065675	7		
53	065692	065709	065726	065744	065761	065778	6		
54	065796	065813	065830	065847	065865	065882	5		
55	065899	065917	065934	065951	065969	065986	4		
56	066003	066021	066038	066055	066073	066090	3		
57	066107	066125	066142	066159	066177	066194	2		
58	066211	066229	066246	066263	066281	066298	1		
59	066315	066333	066350	066367	066385	066402	0		
Minutes	60°	50°	40°	30°	20°	10°	Minutes		
Co-versed Sine of 69 degrees, or Versed Sine Supplement of 159 degrees.									
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	2	3	5	7	8	10	12	14	15

Minutes	Natural Versed Sine of 21 degrees, or Co-versed Sine of 111 degrees.						Minutes		
	0°	10°	20°	30°	40°	50°			
0	066420	066437	066454	066472	066489	066506	59		
1	066524	066541	066559	066576	066593	066611	58		
2	066628	066646	066663	066680	066698	066715	57		
3	066733	066750	066768	066785	066802	066820	56		
4	066837	066855	066872	066889	066907	066924	55		
5	066942	066959	066977	066994	067012	067029	54		
6	067046	067064	067081	067099	067116	067134	53		
7	067151	067169	067186	067204	067221	067239	52		
8	067256	067274	067291	067309	067326	067343	51		
9	067361	067378	067396	067413	067431	067448	50		
10	067466	067483	067501	067518	067536	067554	49		
11	067571	067589	067606	067624	067641	067659	48		
12	067676	067694	067711	067729	067746	067764	47		
13	067781	067799	067817	067834	067852	067869	46		
14	067887	067904	067922	067939	067957	067975	45		
15	067992	068010	068027	068045	068062	068080	44		
16	068098	068115	068133	068150	068168	068186	43		
17	068203	068221	068238	068256	068274	068291	42		
18	068309	068326	068344	068362	068379	068397	41		
19	068414	068432	068450	068467	068485	068503	40		
20	068520	068538	068556	068573	068591	068608	39		
21	068626	068644	068661	068679	068697	068714	38		
22	068732	068750	068767	068785	068803	068820	37		
23	068838	068856	068873	068891	068909	068926	36		
24	068944	068962	068980	068997	069015	069033	35		
25	069050	069068	069086	069103	069121	069139	34		
26	069157	069174	069192	069210	069227	069245	33		
27	069263	069281	069298	069316	069334	069352	32		
28	069369	069387	069405	069423	069440	069458	31		
29	069476	069494	069511	069529	069547	069565	30		
30	069582	069600	069618	069636	069654	069671	29		
31	069689	069707	069725	069742	069760	069778	28		
32	069796	069814	069831	069849	069867	069885	27		
33	069903	069920	069938	069956	069974	069992	26		
34	070010	070027	070045	070063	070081	070099	25		
35	070116	070134	070152	070170	070188	070206	24		
36	070224	070241	070259	070277	070295	070313	23		
37	070331	070348	070366	070384	070402	070420	22		
38	070438	070456	070474	070491	070509	070527	21		
39	070545	070563	070581	070599	070617	070635	20		
40	070652	070670	070688	070706	070724	070742	19		
41	070760	070778	070796	070814	070832	070850	18		
42	070867	070885	070903	070921	070939	070957	17		
43	070975	070993	071011	071029	071047	071065	16		
44	071083	071101	071119	071137	071155	071172	15		
45	071190	071208	071226	071244	071262	071280	14		
46	071298	071316	071334	071352	071370	071388	13		
47	071406	071424	071442	071460	071478	071496	12		
48	071514	071532	071550	071568	071586	071604	11		
49	071622	071640	071658	071676	071694	071712	10		
50	071730	071748	071766	071784	071803	071821	9		
51	071839	071857	071875	071893	071911	071929	8		
52	071947	071965	071983	072001	072019	072037	7		
53	072055	072073	072091	072109	072128	072146	6		
54	072164	072182	072200	072218	072236	072254	5		
55	072272	072290	072308	072327	072345	072363	4		
56	072381	072399	072417	072435	072453	072471	3		
57	072490	072508	072526	072544	072562	072580	2		
58	072598	072617	072635	072653	072671	072689	1		
59	072707	072725	072744	072762	072780	072798	0		
Minutes	60°	50°	40°	30°	20°	10°	Minutes		
Co-versed Sine of 68 degrees, or Versed Sine Supplement of 152 degrees.									
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	2	4	5	7	9	11	13	14	16

TABLE XXVII.

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NATURAL VERSED SINES.

Natural Versed Sine of 22 degrees, or Co-versed Sine of 112 degrees.						Minutes
10'	20'	30'	40'	50'		
6072834	072852	072871	072889	072907	59	
5072943	072962	072980	072998	073016	58	
4073052	073071	073089	073107	073125	57	
3073162	073180	073198	073216	073234	56	
2073271	073289	073307	073326	073344	55	
1073380	073398	073417	073435	073453	54	
073490	073508	073526	073544	073563	53	
073599	073617	073636	073654	073672	52	
073709	073727	073745	073763	073782	51	
073818	073837	073855	073873	073891	50	
073928	073946	073965	073983	074001	49	
074038	074056	074074	074093	074111	48	
074148	074166	074184	074203	074221	47	
074258	074276	074294	074313	074331	46	
074368	074386	074404	074423	074441	45	
074478	074496	074515	074533	074551	44	
074588	074606	074625	074643	074662	43	
074699	074717	074735	074753	074772	42	
074809	074827	074845	074864	074882	41	
074919	074938	074956	074974	074993	40	
075030	075048	075066	075085	075103	39	
075140	075159	075177	075196	075214	38	
075251	075269	075288	075306	075325	37	
075362	075380	075399	075417	075435	36	
075472	075491	075509	075528	075546	35	
075583	075602	075620	075639	075657	34	
075694	075713	075731	075750	075768	33	
075805	075824	075842	075861	075879	32	
075916	075935	075954	075972	075991	31	
076028	076046	076065	076083	076102	30	
076139	076158	076176	076195	076213	29	
076250	076269	076288	076306	076325	28	
076362	076380	076399	076418	076436	27	
076473	076492	076511	076529	076548	26	
076585	076604	076622	076641	076659	25	
076697	076715	076734	076753	076771	24	
076808	076827	076846	076864	076883	23	
076920	076939	076958	076976	076995	22	
077032	077051	077069	077088	077107	21	
077144	077163	077182	077200	077219	20	
077256	077275	077294	077312	077331	19	
077368	077387	077406	077424	077443	18	
077481	077499	077518	077537	077555	17	
077593	077612	077630	077649	077668	16	
077705	077724	077743	077762	077780	15	
077818	077837	077855	077874	077893	14	
077930	077949	077968	077987	078005	13	
078043	078062	078080	078099	078118	12	
078156	078174	078193	078212	078231	11	
078268	078287	078306	078325	078344	10	
078381	078400	078419	078438	078457	9	
078494	078513	078532	078551	078570	8	
078607	078626	078645	078664	078683	7	
078720	078739	078758	078777	078796	6	
078833	078852	078871	078890	078909	5	
078947	078966	078984	079003	079022	4	
079060	079079	079098	079117	079136	3	
079173	079192	079211	079230	079249	2	
079287	079306	079325	079344	079363	1	
079400	079419	079438	079457	079476	0	
50'	40'	30'	20'	10'		
Co-versed Sine of 67 degrees, or Sine Supplement of 157 degrees.						Minutes
1	2	3	4	5	6	
2	4	6	7	9	11	
12	13	15	17			
Natural Versed Sine of 23 degrees, or Co-versed Sine of 113 degrees.						Minutes
0	10'	20'	30'	40'	50'	
079495	079514	079533	079552	079571	079590	59
079609	079628	079647	079666	079685	079704	58
079723	079742	079761	079780	079799	079817	57
079836	079855	079874	079893	079912	079931	56
079950	079969	079988	080007	080026	080045	55
080064	080083	080102	080121	080140	080159	54
080179	080198	080217	080236	080255	080274	53
080293	080312	080331	080350	080369	080388	52
080407	080426	080445	080464	080483	080502	51
080521	080540	080559	080578	080597	080617	50
080636	080655	080674	080693	080712	080731	49
080750	080769	080788	080807	080826	080846	48
080865	080884	080903	080922	080941	080960	47
080979	080998	081018	081037	081056	081075	46
081094	081113	081132	081151	081170	081190	45
081209	081228	081247	081266	081285	081305	44
081324	081343	081362	081381	081400	081419	43
081439	081458	081477	081496	081515	081534	42
081554	081573	081592	081611	081630	081650	41
081669	081688	081707	081726	081745	081765	40
081784	081803	081822	081842	081861	081880	39
081899	081918	081938	081957	081976	081995	38
082014	082034	082053	082072	082091	082111	37
082130	082149	082168	082188	082207	082226	36
082245	082265	082284	082303	082322	082342	35
082361	082380	082399	082419	082438	082457	34
082477	082496	082515	082534	082554	082573	33
082592	082612	082631	082650	082669	082689	32
082708	082727	082747	082766	082785	082805	31
082824	082843	082863	082882	082901	082921	30
082940	082959	082979	082998	083017	083037	29
083056	083075	083095	083114	083133	083153	28
083172	083191	083211	083230	083249	083269	27
083288	083308	083327	083346	083366	083385	26
083405	083424	083443	083463	083482	083501	25
083521	083540	083560	083579	083598	083618	24
083637	083657	083676	083696	083715	083734	23
083754	083773	083793	083812	083831	083851	22
083870	083890	083909	083929	083948	083968	21
083987	084006	084026	084045	084065	084084	20
084104	084123	084143	084162	084182	084201	19
084221	084240	084259	084279	084298	084318	18
084337	084357	084376	084396	084415	084435	17
084454	084474	084493	084513	084532	084552	16
084571	084591	084610	084630	084649	084669	15
084689	084708	084728	084747	084767	084786	14
084806	084825	084845	084864	084884	084904	13
084923	084943	084962	084982	085001	085021	12
085040	085060	085079	085099	085119	085138	11
085158	085177	085197	085216	085236	085255	10
085275	085295	085314	085334	085354	085373	9
085393	085412	085432	085452	085471	085491	8
085510	085530	085550	085569	085589	085609	7
085628	085648	085667	085687	085707	085726	6
085746	085766	085785	085805	085825	085844	5
085864	085884	085903	085923	085943	085962	4
085982	086002	086021	086041	086061	086080	3
086100	086120	086139	086159	086179	086198	2
086218	086238	086257	086277	086297	086317	1
086336	086356	086376	086395	086415	086435	0
60'	50'	40'	30'	20'	10'	
Co-versed Sine of 66 degrees, or Versed Sine Supplement of 156 degrees.						Minutes
Proport.	1"	2"	3"	4"	5"	
parts.	2	4	6	8	10	
	12	14	16	17		

NATURAL VERSED SINES.

Natural Versed Sine of 24 degrees, or Co-versed Sine of 114 degrees.							Natural Versed Sine of 25 degrees, Co-versed Sine of 115 degrees.						
Minutes	0'	10'	20'	30'	40'	50'	Minutes	0'	10'	20'	30'	40'	5'
0	086455	086474	086494	086514	086533	086553	0	093692	093713	093733	093754	093774	09
1	086573	086593	086612	086632	086652	086672	1	093815	093836	093856	093877	093897	09
2	086691	086711	086731	086751	086770	086790	2	093938	093959	093979	094000	094020	09
3	086810	086830	086849	086869	086889	086909	3	094061	094082	094102	094123	094143	09
4	086928	086948	086968	086988	087008	087027	4	094185	094205	094226	094246	094267	09
5	087047	087067	087087	087106	087126	087146	5	094308	094328	094349	094369	094390	09
6	087166	087186	087205	087225	087245	087265	6	094431	094452	094472	094493	094513	09
7	087285	087304	087324	087344	087364	087384	7	094555	094575	094596	094616	094637	09
8	087404	087423	087443	087463	087483	087503	8	094678	094699	094719	094740	094760	09
9	087523	087542	087562	087582	087602	087622	9	094802	094822	094843	094864	094884	09
10	087642	087661	087681	087701	087721	087741	10	094925	094946	094967	094987	095008	09
11	087761	087781	087800	087820	087840	087860	11	095049	095070	095090	095111	095132	09
12	087880	087900	087920	087940	087959	087979	12	095173	095194	095214	095235	095256	09
13	087999	088019	088039	088059	088079	088099	13	095297	095317	095338	095359	095379	09
14	088119	088138	088158	088178	088198	088218	14	095421	095441	095462	095483	095503	09
15	088238	088258	088278	088298	088318	088338	15	095545	095566	095586	095607	095628	09
16	088357	088377	088397	088417	088437	088457	16	095669	095690	095710	095731	095752	09
17	088477	088497	088517	088537	088557	088577	17	095793	095814	095835	095855	095876	09
18	088597	088617	088637	088657	088677	088697	18	095917	095938	095959	095980	096000	09
19	088716	088736	088756	088776	088796	088816	19	096042	096063	096083	096104	096125	09
20	088836	088856	088876	088896	088916	088936	20	096166	096187	096208	096228	096249	09
21	088956	088976	088996	089016	089036	089056	21	096291	096311	096332	096353	096374	09
22	089076	089096	089116	089136	089156	089176	22	096415	096436	096457	096478	096498	09
23	089196	089216	089236	089256	089276	089296	23	096540	096561	096582	096602	096623	09
24	089316	089336	089356	089376	089396	089417	24	096665	096686	096706	096727	096748	09
25	089437	089457	089477	089497	089517	089537	25	096790	096810	096831	096852	096873	09
26	089557	089577	089597	089617	089637	089657	26	096914	096935	096956	096977	096998	09
27	089677	089697	089717	089737	089757	089778	27	097039	097060	097081	097102	097123	09
28	089798	089818	089838	089858	089878	089898	28	097164	097185	097206	097227	097248	09
29	089918	089938	089958	089978	089999	090019	29	097290	097310	097331	097352	097373	09
30	090039	090059	090079	090099	090119	090139	30	097415	097436	097456	097477	097498	09
31	090159	090180	090200	090220	090240	090260	31	097540	097561	097582	097603	097624	09
32	090280	090300	090320	090341	090361	090381	32	097665	097686	097707	097728	097749	09
33	090401	090421	090441	090461	090482	090502	33	097791	097812	097833	097853	097874	09
34	090522	090542	090562	090582	090603	090623	34	097916	097937	097958	097979	098000	09
35	090643	090663	090683	090703	090724	090744	35	098042	098063	098084	098105	098126	09
36	090764	090784	090804	090824	090845	090865	36	098167	098188	098209	098230	098251	09
37	090885	090905	090925	090946	090966	090986	37	098293	098314	098335	098356	098377	09
38	091006	091026	091047	091067	091087	091107	38	098419	098440	098461	098482	098503	09
39	091128	091148	091168	091188	091208	091229	39	098545	098566	098587	098608	098629	09
40	091249	091269	091289	091310	091330	091350	40	098671	098692	098713	098734	098755	09
41	091370	091391	091411	091431	091451	091472	41	098797	098818	098839	098860	098881	09
42	091492	091512	091532	091553	091573	091593	42	098923	098944	098965	098986	099007	09
43	091613	091634	091654	091674	091695	091715	43	099049	099070	099091	099112	099133	09
44	091735	091755	091776	091796	091816	091837	44	099175	099196	099218	099239	099260	09
45	091857	091877	091897	091918	091938	091958	45	099302	099323	099344	099365	099386	09
46	091979	091999	092019	092040	092060	092080	46	099428	099449	099470	099491	099512	09
47	092101	092121	092141	092162	092182	092202	47	099555	099576	099597	099618	099639	09
48	092223	092243	092263	092284	092304	092324	48	099681	099702	099723	099745	099766	09
49	092345	092365	092385	092406	092426	092446	49	099808	099829	099850	099871	099892	09
50	092467	092487	092507	092528	092548	092569	50	099935	099956	099977	099998	100019	100
51	092589	092609	092630	092650	092670	092691	51	100061	100083	100104	100125	100146	100
52	092711	092732	092752	092772	092793	092813	52	100188	100209	100231	100252	100273	100
53	092834	092854	092874	092895	092915	092936	53	100315	100336	100358	100379	100400	100
54	092956	092976	092997	093017	093038	093058	54	100442	100463	100485	100506	100527	100
55	093078	093099	093119	093140	093160	093181	55	100569	100591	100612	100633	100654	100
56	093201	093222	093242	093262	093283	093303	56	100696	100718	100739	100760	100781	100
57	093324	093344	093365	093385	093406	093426	57	100824	100845	100866	100887	100909	100
58	093446	093467	093487	093508	093528	093549	58	100951	100972	100994	101015	101036	101
59	093569	093590	093610	093631	093651	093672	59	101078	101100	101121	101142	101163	101
60' 50' 40' 30' 20' 10'							60' 50' 40' 30' 20' 10'						
Co-versed Sine of 65 degrees, or Versed Sine Supplement of 155 degrees.							Co-versed Sine of 64 degrees, or Versed Sine Supplement of 154 degrees.						
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. } 2 4 6 8 10 12 14 16 18							parts. } 2 4 6 8 10 12 14 15 16						

NATURAL VERSED SINES.

Natural Versed Sine of 26 degrees, or Co-versed sine of 116 degrees.							Minutes
0"	10"	20"	30"	40"	50"		Minutes
0	101206	101227	101248	101270	101291	101312	59
1	101334	101355	101376	101397	101419	101440	58
2	101461	101482	101504	101525	101546	101568	57
3	101589	101610	101631	101653	101674	101695	56
4	101717	101738	101759	101781	101802	101823	55
5	101844	101866	101887	101908	101930	101951	54
6	101972	101994	102015	102036	102058	102079	53
7	102100	102122	102143	102164	102186	102207	52
8	102229	102250	102271	102293	102314	102335	51
9	102357	102378	102399	102421	102442	102464	50
10	102485	102506	102528	102549	102570	102592	49
11	102613	102635	102656	102677	102699	102720	48
12	102744	102765	102786	102808	102829	102849	47
13	102870	102892	102913	102934	102956	102977	46
14	102999	103020	103042	103063	103084	103106	45
15	103127	103149	103170	103192	103213	103234	44
16	103256	103277	103299	103320	103342	103363	43
17	103385	103406	103428	103449	103471	103492	42
18	103514	103535	103557	103578	103600	103621	41
19	103642	103664	103685	103707	103728	103750	40
20	103771	103793	103815	103836	103858	103879	39
21	103901	103922	103944	103965	103987	104008	38
22	104030	104051	104073	104094	104116	104137	37
23	104159	104180	104202	104224	104245	104267	36
24	104288	104310	104331	104353	104374	104396	35
25	104418	104439	104461	104482	104504	104525	34
26	104547	104569	104590	104612	104633	104655	33
27	104677	104698	104720	104741	104763	104785	32
28	104806	104828	104849	104871	104893	104914	31
29	104936	104958	104979	105001	105022	105044	30
30	105066	105087	105109	105131	105152	105174	29
31	105195	105217	105239	105260	105282	105304	28
32	105325	105347	105369	105390	105412	105434	27
33	105455	105477	105499	105520	105542	105564	26
34	105585	105607	105629	105650	105672	105694	25
35	105716	105737	105759	105781	105802	105824	24
36	105846	105867	105889	105911	105933	105954	23
37	105976	105998	106019	106041	106063	106085	22
38	106106	106128	106150	106172	106193	106215	21
39	106237	106259	106280	106302	106324	106346	20
40	106367	106389	106411	106433	106454	106476	19
41	106498	106520	106541	106563	106585	106607	18
42	106629	106650	106672	106694	106716	106738	17
43	106759	106781	106803	106825	106847	106868	16
44	106890	106912	106934	106956	106977	106999	15
45	107021	107043	107065	107087	107108	107130	14
46	107152	107174	107196	107218	107239	107261	13
47	107283	107305	107327	107349	107370	107392	12
48	107414	107436	107458	107480	107502	107524	11
49	107545	107567	107589	107611	107633	107655	10
50	107677	107699	107720	107742	107764	107786	9
51	107808	107830	107852	107874	107896	107917	8
52	107939	107961	107983	108005	108027	108049	7
53	108071	108093	108115	108137	108159	108181	6
54	108202	108224	108246	108268	108290	108312	5
55	108334	108356	108378	108400	108422	108444	4
56	108466	108488	108510	108532	108554	108576	3
57	108598	108620	108642	108664	108686	108708	2
58	108730	108752	108773	108795	108817	108839	1
59	108861	108883	108905	108927	108949	108971	0
60" 50" 40" 30" 20" 10"							Minutes
Covered Sine of 63 degrees, or Versed Sine Supplement of 153 degrees.							Minutes
Proper. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							Minutes
parts. } 2 4 6 9 11 13 15 17 19							Minutes

Natural Versed Sine of 27 degrees, or Co-versed Sine of 117 degrees.							Minutes
0"	10"	20"	30"	40"	50"		Minutes
0	108993	109015	109038	109060	109082	109104	59
1	109126	109148	109170	109192	109214	109236	58
2	109258	109280	109302	109324	109346	109368	57
3	109390	109412	109434	109456	109478	109500	56
4	109522	109544	109567	109589	109611	109633	55
5	109655	109677	109699	109721	109743	109765	54
6	109787	109809	109831	109853	109876	109898	53
7	109920	109942	109964	109986	110008	110030	52
8	110052	110074	110097	110119	110141	110163	51
9	110185	110207	110229	110251	110274	110296	50
10	110318	110340	110362	110384	110406	110429	49
11	110451	110473	110495	110517	110539	110561	48
12	110584	110606	110628	110650	110672	110694	47
13	110717	110739	110761	110783	110805	110828	46
14	110850	110872	110894	110916	110938	110961	45
15	110983	111005	111027	111049	111072	111094	44
16	111116	111138	111161	111183	111205	111227	43
17	111249	111272	111294	111316	111338	111361	42
18	111383	111405	111427	111449	111472	111494	41
19	111516	111538	111561	111583	111605	111627	40
20	111650	111672	111694	111717	111739	111761	39
21	111783	111806	111828	111850	111872	111895	38
22	111917	111939	111962	111984	112006	112028	37
23	112051	112073	112095	112118	112140	112162	36
24	112185	112207	112229	112252	112274	112296	35
25	112319	112341	112363	112385	112408	112430	34
26	112452	112475	112497	112520	112542	112564	33
27	112587	112609	112631	112654	112676	112698	32
28	112721	112743	112765	112788	112810	112833	31
29	112855	112877	112900	112922	112944	112967	30
30	112989	113012	113034	113056	113079	113101	29
31	113124	113146	113168	113191	113213	113236	28
32	113258	113280	113303	113325	113348	113370	27
33	113392	113415	113437	113460	113482	113505	26
34	113527	113549	113572	113594	113617	113639	25
35	113662	113684	113707	113729	113752	113774	24
36	113796	113819	113841	113864	113886	113909	23
37	113931	113954	113976	113999	114021	114044	22
38	114066	114089	114111	114134	114156	114179	21
39	114201	114224	114246	114269	114291	114314	20
40	114336	114359	114381	114404	114426	114449	19
41	114471	114494	114516	114539	114561	114584	18
42	114606	114629	114651	114674	114697	114719	17
43	114742	114764	114787	114809	114832	114854	16
44	114877	114900	114922	114945	114967	114990	15
45	115012	115035	115058	115080	115103	115125	14
46	115148	115170	115193	115216	115238	115261	13
47	115283	115306	115329	115351	115374	115396	12
48	115419	115442	115464	115487	115509	115532	11
49	115555	115577	115600	115623	115645	115668	10
50	115691	115713	115736	115758	115781	115804	9
51	115826	115849	115872	115894	115917	115940	8
52	115962	115985	116008	116030	116053	116076	7
53	116098	116121	116144	116166	116189	116212	6
54	116234	116257	116280	116302	116325	116348	5
55	116371	116393	116416	116439	116461	116484	4
56	116507	116529	116552	116575	116598	116620	3
57	116643	116666	116689	116711	116734	116757	2
58	116779	116802	116825	116848	116870	116893	1
59	116916	116939	116961	116984	117007	117030	0
60" 50" 40" 30" 20" 10"							Minutes
Co-versed Sine of 62 degrees, or Versed Sine Supplement of 152 degrees.							Minutes
Proper. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							Minutes
parts. } 2 4 7 9 11 13 16 18 20							Minutes

NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 28 degrees, or Co-versed Sine of 118 degrees.						Minutes
	0'	10'	20'	30'	40'	50'	
0	117052	117075	117098	117121	117143	117166	50
1	117189	117212	117235	117257	117280	117303	58
2	117326	117348	117371	117394	117417	117440	57
3	117462	117485	117508	117531	117554	117576	56
4	117599	117622	117645	117668	117691	117713	55
5	117736	117759	117782	117805	117827	117850	54
6	117873	117896	117919	117942	117964	117987	53
7	118010	118033	118056	118079	118102	118124	52
8	118147	118170	118193	118216	118239	118262	51
9	118284	118307	118330	118353	118376	118399	50
10	118422	118445	118468	118490	118513	118536	49
11	118559	118582	118605	118628	118651	118674	48
12	118697	118719	118742	118765	118788	118811	47
13	118834	118857	118880	118903	118926	118949	46
14	118972	118995	119017	119040	119063	119086	45
15	119109	119132	119155	119178	119201	119224	44
16	119247	119270	119293	119316	119339	119362	43
17	119385	119408	119431	119454	119477	119500	42
18	119523	119546	119569	119592	119615	119638	41
19	119661	119684	119707	119730	119753	119776	40
20	119799	119822	119845	119868	119891	119914	39
21	119937	119960	119983	120006	120029	120052	38
22	120075	120098	120121	120144	120167	120190	37
23	120213	120236	120259	120282	120305	120328	36
24	120351	120374	120398	120421	120444	120467	35
25	120490	120513	120536	120559	120582	120605	34
26	120628	120651	120674	120697	120721	120744	33
27	120767	120790	120813	120836	120859	120882	32
28	120905	120929	120952	120975	120998	121021	31
29	121044	121067	121090	121113	121137	121160	30
30	121183	121206	121229	121252	121275	121299	29
31	121322	121345	121368	121391	121414	121437	28
32	121461	121484	121507	121530	121553	121576	27
33	121600	121623	121646	121669	121692	121715	26
34	121739	121762	121785	121808	121831	121855	25
35	121878	121901	121924	121947	121971	121994	24
36	122017	122040	122063	122087	122110	122133	23
37	122156	122180	122203	122226	122249	122272	22
38	122296	122319	122342	122365	122389	122412	21
39	122435	122458	122482	122505	122528	122551	20
40	122575	122598	122621	122644	122668	122691	19
41	122714	122737	122761	122784	122807	122831	18
42	122854	122877	122900	122924	122947	122970	17
43	122994	123017	123040	123063	123087	123110	16
44	123133	123157	123180	123203	123227	123250	15
45	123273	123297	123320	123343	123367	123390	14
46	123413	123437	123460	123483	123507	123530	13
47	123553	123577	123600	123623	123647	123670	12
48	123693	123717	123740	123763	123787	123810	11
49	123833	123857	123880	123904	123927	123950	10
50	123974	123997	124021	124044	124067	124091	9
51	124114	124137	124161	124184	124208	124231	8
52	124254	124278	124301	124325	124348	124372	7
53	124395	124418	124442	124465	124489	124512	6
54	124535	124559	124582	124606	124629	124653	5
55	124676	124700	124723	124746	124770	124793	4
56	124817	124840	124864	124887	124911	124934	3
57	124958	124981	125004	125028	125051	125075	2
58	125098	125122	125145	125169	125192	125216	1
59	125239	125263	125286	125310	125333	125357	0
Minutes	Co-versed Sine of 61 degrees, or Versed Sine Supplement of 151 degrees.						Minutes
	60'	50'	40'	30'	20'	10'	
0	117052	117075	117098	117121	117143	117166	50
1	117189	117212	117235	117257	117280	117303	58
2	117326	117348	117371	117394	117417	117440	57
3	117462	117485	117508	117531	117554	117576	56
4	117599	117622	117645	117668	117691	117713	55
5	117736	117759	117782	117805	117827	117850	54
6	117873	117896	117919	117942	117964	117987	53
7	118010	118033	118056	118079	118102	118124	52
8	118147	118170	118193	118216	118239	118262	51
9	118284	118307	118330	118353	118376	118399	50
10	118422	118445	118468	118490	118513	118536	49
11	118559	118582	118605	118628	118651	118674	48
12	118697	118719	118742	118765	118788	118811	47
13	118834	118857	118880	118903	118926	118949	46
14	118972	118995	119017	119040	119063	119086	45
15	119109	119132	119155	119178	119201	119224	44
16	119247	119270	119293	119316	119339	119362	43
17	119385	119408	119431	119454	119477	119500	42
18	119523	119546	119569	119592	119615	119638	41
19	119661	119684	119707	119730	119753	119776	40
20	119799	119822	119845	119868	119891	119914	39
21	119937	119960	119983	120006	120029	120052	38
22	120075	120098	120121	120144	120167	120190	37
23	120213	120236	120259	120282	120305	120328	36
24	120351	120374	120398	120421	120444	120467	35
25	120490	120513	120536	120559	120582	120605	34
26	120628	120651	120674	120697	120721	120744	33
27	120767	120790	120813	120836	120859	120882	32
28	120905	120929	120952	120975	120998	121021	31
29	121044	121067	121090	121113	121137	121160	30
30	121183	121206	121229	121252	121275	121299	29
31	121322	121345	121368	121391	121414	121437	28
32	121461	121484	121507	121530	121553	121576	27
33	121600	121623	121646	121669	121692	121715	26
34	121739	121762	121785	121808	121831	121855	25
35	121878	121901	121924	121947	121971	121994	24
36	122017	122040	122063	122087	122110	122133	23
37	122156	122180	122203	122226	122249	122272	22
38	122296	122319	122342	122365	122389	122412	21
39	122435	122458	122482	122505	122528	122551	20
40	122575	122598	122621	122644	122668	122691	19
41	122714	122737	122761	122784	122807	122831	18
42	122854	122877	122900	122924	122947	122970	17
43	122994	123017	123040	123063	123087	123110	16
44	123133	123157	123180	123203	123227	123250	15
45	123273	123297	123320	123343	123367	123390	14
46	123413	123437	123460	123483	123507	123530	13
47	123553	123577	123600	123623	123647	123670	12
48	123693	123717	123740	123763	123787	123810	11
49	123833	123857	123880	123904	123927	123950	10
50	123974	123997	124021	124044	124067	124091	9
51	124114	124137	124161	124184	124208	124231	8
52	124254	124278	124301	124325	124348	124372	7
53	124395	124418	124442	124465	124489	124512	6
54	124535	124559	124582	124606	124629	124653	5
55	124676	124700	124723	124746	124770	124793	4
56	124817	124840	124864	124887	124911	124934	3
57	124958	124981	125004	125028	125051	125075	2
58	125098	125122	125145	125169	125192	125216	1
59	125239	125263	125286	125310	125333	125357	0
Minutes	Natural Versed Sine of 29 degrees, or Co-versed Sine of 119 degrees.						Minutes
	0'	10'	20'	30'	40'	50'	
0	125380	125404	125427	125451	125474	125498	50
1	125521	125545	125568	125592	125615	125639	58
2	125662	125686	125710	125733	125757	125780	57
3	125804	125827	125851	125874	125898	125921	56
4	125945	125969	125992	126016	126039	126063	55
5	126086	126110	126133	126157	126181	126204	54
6	126228	126251	126275	126299	126322	126346	53
7	126369	126393	126416	126440	126464	126487	52
8	126511	126534	126558	126582	126605	126629	51
9	126653	126676	1				

TABLE XXVII.

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NATURAL VERSED SINES.

Natural Versed Sine of 30 degrees, or Co-versed Sine of 120 degrees.													Natural Versed Sine of 31 degrees, or Co-versed Sine of 121 degrees.												
Minutes	0"	10"	20"	30"	40"	50"	Minutes	Minutes	0"	10"	20"	30"	40"	50"	Minutes	Minutes	0"	10"	20"	30"	40"	50"	Minutes	Minutes	Minutes
0	133975	133999	134023	134047	134072	134096	59	0	142833	142858	142883	142908	142933	142958	59	0	142833	142858	142883	142908	142933	142958	59	0	142833
1	134120	134144	134169	134193	134217	134241	58	1	142983	143008	143033	143058	143082	143107	58	1	142983	143008	143033	143058	143082	143107	58	1	142983
2	134266	134290	134314	134338	134363	134387	57	2	143132	143157	143182	143207	143232	143257	57	2	143132	143157	143182	143207	143232	143257	57	2	143132
3	134411	134436	134460	134484	134508	134533	56	3	143282	143307	143332	143358	143383	143408	56	3	143282	143307	143332	143358	143383	143408	56	3	143282
4	134557	134581	134606	134630	134654	134678	55	4	143433	143458	143483	143508	143533	143558	55	4	143433	143458	143483	143508	143533	143558	55	4	143433
5	134703	134727	134751	134776	134800	134824	54	5	143583	143608	143633	143658	143683	143708	54	5	143583	143608	143633	143658	143683	143708	54	5	143583
6	134849	134873	134897	134922	134946	134970	53	6	143733	143758	143783	143808	143833	143858	53	6	143733	143758	143783	143808	143833	143858	53	6	143733
7	134994	135019	135043	135067	135092	135116	52	7	143883	143908	143933	143958	143983	144009	52	7	143883	143908	143933	143958	143983	144009	52	7	143883
8	135140	135165	135189	135213	135238	135262	51	8	144034	144059	144084	144109	144134	144159	51	8	144034	144059	144084	144109	144134	144159	51	8	144034
9	135287	135311	135335	135360	135384	135408	50	9	144184	144209	144234	144259	144284	144309	50	9	144184	144209	144234	144259	144284	144309	50	9	144184
10	135433	135457	135481	135506	135530	135555	49	10	144335	144360	144385	144410	144435	144460	49	10	144335	144360	144385	144410	144435	144460	49	10	144335
11	135579	135603	135628	135652	135676	135701	48	11	144485	144510	144535	144560	144586	144611	48	11	144485	144510	144535	144560	144586	144611	48	11	144485
12	135725	135750	135774	135798	135823	135847	47	12	144636	144661	144686	144711	144736	144761	47	12	144636	144661	144686	144711	144736	144761	47	12	144636
13	135872	135896	135920	135945	135969	135994	46	13	144786	144812	144837	144862	144887	144912	46	13	144786	144812	144837	144862	144887	144912	46	13	144786
14	136018	136042	136067	136091	136116	136140	45	14	144937	144962	144988	145013	145038	145063	45	14	144937	144962	144988	145013	145038	145063	45	14	144937
15	136164	136189	136213	136238	136262	136287	44	15	145088	145113	145138	145164	145189	145214	44	15	145088	145113	145138	145164	145189	145214	44	15	145088
16	136311	136336	136360	136384	136409	136433	43	16	145239	145264	145289	145315	145340	145365	43	16	145239	145264	145289	145315	145340	145365	43	16	145239
17	136458	136482	136507	136531	136556	136580	42	17	145390	145415	145440	145466	145491	145516	42	17	145390	145415	145440	145466	145491	145516	42	17	145390
18	136604	136629	136653	136678	136702	136727	41	18	145541	145566	145592	145617	145642	145667	41	18	145541	145566	145592	145617	145642	145667	41	18	145541
19	136751	136776	136800	136825	136849	136874	40	19	145692	145717	145743	145768	145793	145818	40	19	145692	145717	145743	145768	145793	145818	40	19	145692
20	136898	136923	136947	136972	136996	137021	39	20	145844	145869	145894	145919	145944	145969	39	20	145844	145869	145894	145919	145944	145969	39	20	145844
21	137045	137070	137094	137119	137143	137168	38	21	145995	146020	146045	146071	146096	146121	38	21	145995	146020	146045	146071	146096	146121	38	21	145995
22	137192	137217	137241	137266	137290	137315	37	22	146146	146171	146197	146222	146247	146272	37	22	146146	146171	146197	146222	146247	146272	37	22	146146
23	137339	137364	137388	137413	137437	137462	36	23	146298	146323	146348	146373	146399	146424	36	23	146298	146323	146348	146373	146399	146424	36	23	146298
24	137486	137511	137535	137560	137584	137609	35	24	146449	146474	146500	146525	146550	146576	35	24	146449	146474	146500	146525	146550	146576	35	24	146449
25	137634	137658	137683	137707	137732	137756	34	25	146601	146626	146651	146677	146702	146727	34	25	146601	146626	146651	146677	146702	146727	34	25	146601
26	137781	137805	137830	137855	137879	137904	33	26	146752	146777	146803	146828	146854	146879	33	26	146752	146777	146803	146828	146854	146879	33	26	146752
27	137928	137953	137977	138002	138027	138051	32	27	146904	146929	146955	146980	147005	147031	32	27	146904	146929	146955	146980	147005	147031	32	27	146904
28	138076	138100	138125	138149	138174	138199	31	28	147056	147081	147107	147132	147157	147183	31	28	147056	147081	147107	147132	147157	147183	31	28	147056
29	138223	138248	138272	138297	138322	138346	30	29	147208	147233	147259	147284	147309	147335	30	29	147208	147233	147259	147284	147309	147335	30	29	147208
30	138371	138395	138420	138445	138469	138494	29	30	147360	147385	147411	147436	147461	147487	29	30	147360	147385	147411	147436	147461	147487	29	30	147360
31	138519	138543	138568	138592	138617	138642	28	31	147512	147537	147563	147588	147613	147638	28	31	147512	147537	147563	147588	147613	147638	28	31	147512
32	138666	138691	138716	138740	138765	138790	27	32	147664	147689	147715	147740	147765	147791	27	32	147664	147689	147715	147740	147765	147791	27	32	147664
33	138814	138839	138863	138888	138913	138937	26	33	147816	147841	147867	147892	147917	147943	26	33	147816	147841	147867	147892	147917	147943	26	33	147816
34	138962	138987	139011	139036	139061	139085	25	34	147968	147994	148019	148044	148069	148095	25	34	147968	147994	148019	148044	148069	148095	25	34	147968
35	139110	139135	139159	139184	139209	139233	24	35	148121	148146	148171	148197	148222	148248	24	35	148121	148146	148171	148197	148222	148248	24	35	148121
36	139258	139283	139307	139332	139357	139381	23	36	148273	148298	148324	148349	148375	148400	23	36	148273	148298	148324	148349	148375	148400	23	36	148273
37	139406	139431	139455	139480	139505	139530	22	37	148425	148451	148476	148502	148527	148553	22	37	148425	148451	148476	148502	148527	148553	22	37	148425
38	139554	139579	139604	139628	139653	139678	21	38	148578	148603	148629	148654	148680	148705	21	38	148578	148603	148629	148654	148680	148705	21	38	148578
39	139703	139727	139752	139777	139801	139826	20	39	148731	148756	148782	148807	148832	148858	20	39	148731	148756	148782	148807	148832	148858	20	39	148731
40	139851	139876	139900	139925	139950	139975	19	40	148883	148909	148934	148960	148985	149011	19	40	148883	148909	148934	148960	148985	149011	19	40	148883
41	139999	140024	140049	140073	140098	140123	18	41	149036	149062	149087	149112	149138	149163	18	41	149036	149062	149087	149112	149138	149163	18	41	149036
42	140148	140172	140197	140222	140247	140272	17	42	149189	149214	149240	149265	149291	149316	17	42	149189	149214	149240	149265	149291	149316	17	42	149189
43	140296	140321	140346	140371	140395	140420	16	43	149342	149367	149393	149418	149444	149469	16	43	149342	149367	149393	149418	149444	149469	16	43	149342
44	140445	140470	140494	140519	140544	140569	15	44	149495	149520	149546	149571	149597	149622	15	44	149495	149520	149546	149571	149597	149622	15	44	149495

NATURAL VERSED SINES.

		Natural Versed Sine of 32 degrees, or Co-versed Sine of 122 degrees.							
Minutes		0'	10'	20'	30'	40'	50'		Minutes
0	151952	151978	152003	152029	152055	152080		59	
1	152106	152132	152157	152183	152209	152235		58	
2	152260	152286	152312	152337	152363	152389		57	
3	152415	152440	152466	152492	152518	152544		56	
4	152569	152595	152621	152646	152672	152698		55	
5	152724	152749	152775	152801	152826	152852		54	
6	152878	152904	152930	152955	152981	153007		53	
7	153033	153058	153084	153110	153136	153162		52	
8	153187	153213	153239	153265	153291	153316		51	
9	153342	153368	153394	153420	153445	153471		50	
10	153497	153523	153549	153574	153600	153626		49	
11	153652	153678	153704	153729	153755	153781		48	
12	153807	153833	153859	153884	153910	153936		47	
13	153962	153988	154014	154039	154065	154091		46	
14	154117	154143	154169	154195	154220	154246		45	
15	154272	154298	154324	154350	154376	154402		44	
16	154427	154453	154479	154505	154531	154557		43	
17	154583	154609	154635	154660	154686	154712		42	
18	154738	154764	154790	154816	154842	154868		41	
19	154894	154920	154945	154971	154997	155023		40	
20	155049	155075	155101	155127	155153	155179		39	
21	155205	155231	155257	155283	155309	155335		38	
22	155360	155386	155412	155438	155464	155490		37	
23	155516	155542	155568	155594	155620	155646		36	
24	155672	155698	155724	155750	155776	155802		35	
25	155828	155854	155880	155906	155932	155958		34	
26	155984	156010	156036	156062	156088	156114		33	
27	156140	156166	156192	156218	156244	156270		32	
28	156296	156322	156348	156374	156400	156426		31	
29	156452	156478	156504	156530	156556	156582		30	
30	156609	156635	156661	156687	156713	156739		29	
31	156765	156791	156817	156843	156869	156895		28	
32	156921	156947	156973	157000	157026	157052		27	
33	157078	157104	157130	157156	157182	157208		26	
34	157234	157260	157286	157313	157339	157365		25	
35	157391	157417	157443	157469	157495	157521		24	
36	157548	157574	157600	157626	157652	157678		23	
37	157704	157730	157757	157783	157809	157835		22	
38	157861	157887	157913	157940	157966	157992		21	
39	158018	158044	158070	158097	158123	158149		20	
40	158175	158201	158227	158254	158280	158306		19	
41	158332	158358	158384	158411	158437	158463		18	
42	158489	158515	158542	158568	158594	158620		17	
43	158646	158673	158699	158725	158751	158777		16	
44	158804	158830	158856	158882	158909	158935		15	
45	158961	158987	159013	159040	159066	159092		14	
46	159118	159145	159171	159197	159223	159250		13	
47	159276	159302	159328	159355	159381	159407		12	
48	159433	159460	159486	159512	159538	159565		11	
49	159591	159617	159644	159670	159696	159722		10	
50	159749	159775	159801	159828	159854	159880		9	
51	159906	159933	159959	159985	160012	160038		8	
52	160064	160091	160117	160143	160170	160196		7	
53	160222	160248	160275	160301	160327	160354		6	
54	160380	160406	160433	160459	160485	160512		5	
55	160538	160565	160591	160617	160644	160670		4	
56	160696	160723	160749	160775	160802	160828		3	
57	160854	160881	160907	160934	160960	160986		2	
58	161013	161039	161065	161092	161118	161145		1	
59	161171	161197	161224	161250	161277	161303		0	
Minutes		60'	50'	40'	30'	20'	10'	Minutes	
		Co-versed Sine of 57 degrees, or Versed Sine Supplement of 147 degrees.							
Proper.		1"	2"	3"	4"	5"	6"	7"	8"
parts.		3	5	8	10	13	16	18	23

		Natural Versed Sine of 33 degrees, or Co-versed Sine of 123 degrees.							
Minutes		0'	10'	20'	30'	40'	50'		Minutes
0	161329	161356	161382	161409	161435	161461		59	
1	161488	161514	161541	161567	161594	161620		58	
2	161646	161673	161699	161726	161752	161779		57	
3	161805	161831	161858	161884	161911	161937		56	
4	161964	161990	162017	162043	162070	162096		55	
5	162122	162149	162175	162202	162228	162255		54	
6	162281	162308	162334	162361	162387	162414		53	
7	162440	162467	162493	162520	162546	162573		52	
8	162599	162626	162652	162679	162705	162732		51	
9	162758	162785	162811	162838	162864	162891		50	
10	162918	162944	162970	162997	163023	163050		49	
11	163076	163103	163130	163156	163183	163209		48	
12	163236	163262	163289	163315	163342	163368		47	
13	163395	163422	163448	163475	163501	163528		46	
14	163554	163581	163608	163634	163661	163687		45	
15	163714	163740	163767	163794	163820	163847		44	
16	163873	163900	163927	163953	163980	164006		43	
17	164033	164060	164086	164113	164139	164166		42	
18	164193	164219	164246	164272	164299	164326		41	
19	164352	164379	164406	164432	164459	164486		40	
20	164512	164539	164565	164592	164619	164645		39	
21	164672	164699	164725	164752	164779	164805		38	
22	164832	164859	164885	164912	164939	164965		37	
23	164992	165019	165045	165072	165099	165125		36	
24	165152	165179	165206	165232	165259	165286		35	
25	165312	165339	165366	165392	165419	165446		34	
26	165473	165499	165526	165553	165579	165606		33	
27	165633	165660	165686	165713	165740	165766		32	
28	165793	165820	165847	165873	165900	165927		31	
29	165954	165980	166007	166034	166061	166087		30	
30	166114	166141	166168	166194	166221	166248		29	
31	166275	166302	166328	166355	166382	166409		28	
32	166435	166462	166489	166516	166543	166569		27	
33	166596	166623	166650	166677	166703	166730		26	
34	166757	166784	166811	166837	166864	166891		25	
35	166918	166945	166971	166998	167025	167052		24	
36	167079	167106	167133	167159	167186	167213		23	
37	167240	167267	167293	167320	167347	167374		22	
38	167401	167428	167455	167482	167508	167535		21	
39	167562	167589	167616	167643	167669	167696		20	
40	167723	167750	167777	167804	167831	167858		19	
41	167885	167911	167938	167965	167992	168019		18	
42	168046	168073	168100	168127	168153	168180		17	
43	168207	168234	168261	168288	168315	168342		16	
44	168369	168396	168423	168450	168477	168503		15	
45	168530	168557	168584	168611	168638	168665		14	
46	168692	168719	168746	168773	168800	168827		13	
47	168854	168881	168908	168935	168962	168989		12	
48	169016	169043	169069	169096	169123	169150		11	
49	169177	169204	169231	169258	169285	169312		10	
50	169339	169366	169393	169420	169447	169474		9	
51	169501	169528	169555	169582	169609	169636		8	
52	169663	169690	169717	169744	169771	169798		7	
53	169826	169853	169880	169907	169934	169961		6	
54	169988	170015	170042	170069	170096	170123		5	
55	170150	170177	170204	170231	170258	170285		4	
56	170312	170339	170366	170393	170421	170448		3	
57	170475	170502	170529	170556	170583	170610		2	
58	170637	170664	170691	170719	170746	170773		1	
59	170800	170827	170854	170881	170908	170935		0	
Minutes		60'	50'	40'	30'	20'	10'	Minutes	
		Co-versed Sine of 56 degrees, or Versed Sine Supplement of 146 degrees.							
Proper.		1"	2"	3"	4"	5"	6"	7"	8"
parts.		3	5	8	11	13	16	19	22

NATURAL VERSED SINES.

Natural Versed Sine of 34 degrees, or Co-versed sine of 124 degrees.							Minutes		
0°	10°	20°	30°	40°	50°				
170963	170990	171017	171044	171071	171098		59		
171125	171152	171179	171207	171234	171261		58		
171288	171315	171342	171369	171396	171424		57		
171451	171478	171505	171532	171559	171586		56		
171614	171641	171668	171695	171722	171749		55		
171777	171804	171831	171858	171885	171912		54		
171940	171967	171994	172021	172048	172076		53		
172103	172130	172157	172184	172212	172239		52		
172266	172293	172320	172348	172375	172402		51		
172429	172456	172484	172511	172538	172565		50		
172593	172620	172647	172674	172701	172729		49		
172756	172783	172810	172838	172865	172892		48		
172920	172947	172974	173001	173028	173056		47		
173083	173110	173137	173165	173192	173219		46		
173247	173274	173301	173328	173356	173383		45		
173410	173438	173465	173492	173519	173547		44		
173574	173601	173629	173656	173683	173711		43		
173738	173765	173792	173820	173847	173874		42		
173902	173929	173956	173984	174011	174038		41		
174066	174093	174120	174148	174175	174202		40		
174230	174257	174284	174312	174339	174366		39		
174394	174421	174449	174476	174503	174531		38		
174558	174585	174613	174640	174667	174695		37		
174722	174750	174777	174804	174832	174859		36		
174887	174914	174941	174969	174996	175023		35		
175051	175078	175106	175133	175161	175188		34		
175215	175243	175270	175298	175325	175352		33		
175380	175407	175435	175462	175490	175517		32		
175544	175572	175599	175627	175654	175682		31		
175709	175737	175764	175791	175819	175846		30		
175874	175901	175929	175956	175984	176011		29		
176039	176066	176094	176121	176149	176176		28		
176203	176231	176258	176286	176313	176341		27		
176368	176396	176423	176451	176478	176506		26		
176533	176561	176588	176616	176643	176671		25		
176698	176726	176754	176781	176809	176836		24		
176864	176891	176919	176946	176974	177001		23		
177029	177056	177084	177111	177139	177167		22		
177194	177222	177249	177277	177304	177332		21		
177359	177387	177415	177442	177470	177497		20		
177525	177552	177580	177608	177635	177663		19		
177690	177718	177746	177773	177801	177828		18		
177856	177884	177911	177939	177966	177994		17		
178022	178049	178077	178104	178132	178160		16		
178187	178215	178243	178270	178298	178325		15		
178353	178381	178408	178436	178464	178491		14		
178519	178547	178574	178602	178630	178657		13		
178685	178712	178740	178768	178795	178823		12		
178851	178878	178906	178934	178961	178989		11		
179017	179045	179072	179100	179128	179155		10		
179183	179211	179238	179266	179294	179321		9		
179349	179377	179405	179432	179460	179488		8		
179515	179543	179571	179599	179626	179654		7		
179682	179709	179737	179765	179793	179820		6		
179848	179876	179904	179931	179959	179987		5		
180015	180042	180070	180098	180126	180153		4		
180181	180209	180237	180264	180292	180320		3		
180348	180376	180403	180431	180459	180487		2		
180514	180542	180570	180598	180626	180653		1		
180681	180709	180737	180765	180792	180820		0		
Minutes	60°	50°	40°	30°	20°	10°	Minutes		
Co-versed Sine of 55 degrees, or Versed Sine Supplement of 145 degrees.									
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	3	5	8	11	14	16	19	22	25

Natural Versed Sine of 35 degrees, or Co-versed Sine of 125 degrees.							Minutes		
0°	10°	20°	30°	40°	50°				
180848	180876	180904	180931	180959	180987		59		
181015	181043	181070	181098	181126	181154		58		
181182	181210	181237	181265	181293	181321		57		
181349	181377	181404	181432	181460	181488		56		
181516	181544	181572	181599	181627	181655		55		
181683	181711	181739	181767	181795	181822		54		
181850	181878	181906	181934	181962	181990		53		
182018	182045	182073	182101	182129	182157		52		
182185	182213	182241	182269	182297	182324		51		
182352	182380	182408	182436	182464	182492		50		
182520	182548	182576	182604	182632	182660		49		
182687	182715	182743	182771	182799	182827		48		
182855	182883	182911	182939	182967	182995		47		
183023	183051	183079	183107	183135	183163		46		
183191	183219	183247	183275	183302	183330		45		
183358	183386	183414	183442	183470	183498		44		
183526	183554	183582	183610	183638	183666		43		
183694	183722	183750	183778	183806	183834		42		
183862	183890	183918	183946	183974	184002		41		
184031	184059	184087	184115	184143	184171		40		
184199	184227	184255	184283	184311	184339		39		
184367	184395	184423	184451	184479	184507		38		
184535	184563	184591	184620	184648	184676		37		
184704	184732	184760	184788	184816	184844		36		
184872	184900	184928	184956	184985	185013		35		
185041	185069	185097	185125	185153	185181		34		
185209	185237	185266	185294	185322	185350		33		
185378	185406	185434	185462	185491	185519		32		
185547	185575	185603	185631	185659	185687		31		
185716	185744	185772	185800	185828	185856		30		
185884	185913	185941	185969	185997	186025		29		
186053	186082	186110	186138	186166	186194		28		
186222	186251	186279	186307	186335	186363		27		
186392	186420	186448	186476	186504	186532		26		
186561	186589	186617	186645	186674	186702		25		
186730	186758	186786	186815	186843	186871		24		
186899	186927	186956	186984	187012	187040		23		
187069	187097	187125	187153	187182	187210		22		
187238	187266	187295	187323	187351	187379		21		
187408	187436	187464	187492	187521	187549		20		
187577	187605	187634	187662	187690	187718		19		
187747	187775	187803	187832	187860	187888		18		
187916	187945	187973	188001	188030	188058		17		
188086	188115	188143	188171	188199	188228		16		
188256	188284	188313	188341	188369	188398		15		
188426	188454	188483	188511	188539	188568		14		
188596	188624	188653	188681	188709	188738		13		
188766	188794	188823	188851	188879	188908		12		
188936	188965	188993	189021	189050	189078		11		
189106	189135	189163	189191	189220	189248		10		
189277	189305	189333	189362	189390	189419		9		
189447	189475	189504	189532	189561	189589		8		
189617	189646	189674	189703	189731	189759		7		
189788	189816	189845	189873	189902	189930		6		
189958	189987	190015	190044	190072	190101		5		
190129	190157	190186	190214	190243	190271		4		
190300	190328	190357	190385	190413	190442		3		
190470	190499	190527	190556	190584	190613		2		
190641	190670	190698	190727	190755	190784		1		
190812	190841	190869	190898	190926	190955		0		
Minutes	60°	50°	40°	30°	20°	10°	Minutes		
Co-versed Sine of 54 degrees, or Versed Sine Supplement of 144 degrees.									
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	3	6	8	11	14	17	20	22	25

NATURAL VERSED SINES.

Natural Versed Sine of 36 degrees, or Co-versed sine of 126 degrees.						
Minutes	0'	10'	20'	30'	40'	50'
0	190983	191012	191040	191069	191097	191126
1	191154	191183	191211	191240	191268	191297
2	191325	191354	191382	191411	191439	191468
3	191496	191525	191553	191582	191610	191639
4	191667	191696	191725	191753	191782	191810
5	191839	191867	191896	191924	191953	191982
6	192010	192039	192067	192096	192124	192153
7	192182	192210	192239	192267	192296	192324
8	192353	192382	192410	192439	192467	192496
9	192525	192553	192582	192610	192639	192668
10	192696	192725	192753	192782	192811	192839
11	192868	192897	192925	192954	192982	193011
12	193040	193068	193097	193126	193154	193183
13	193212	193240	193269	193297	193326	193355
14	193383	193412	193441	193469	193498	193527
15	193555	193584	193613	193641	193670	193699
16	193727	193756	193785	193813	193842	193871
17	193900	193928	193957	193986	194014	194043
18	194072	194100	194129	194158	194187	194215
19	194244	194273	194301	194330	194359	194388
20	194416	194445	194474	194502	194531	194560
21	194589	194617	194646	194675	194704	194732
22	194761	194790	194819	194847	194876	194905
23	194934	194962	194991	195020	195049	195077
24	195106	195135	195164	195193	195221	195250
25	195279	195308	195336	195365	195394	195423
26	195455	195484	195512	195541	195570	195599
27	195624	195653	195682	195711	195740	195768
28	195797	195826	195855	195884	195912	195941
29	195970	196000	196028	196057	196085	196114
30	196143	196172	196201	196230	196259	196287
31	196316	196345	196374	196403	196432	196460
32	196489	196518	196547	196576	196605	196634
33	196663	196692	196720	196749	196778	196807
34	196836	196865	196894	196922	196951	196980
35	197009	197038	197067	197096	197125	197154
36	197183	197211	197240	197269	197298	197327
37	197356	197385	197414	197443	197472	197501
38	197530	197558	197587	197616	197645	197674
39	197703	197732	197761	197790	197819	197848
40	197877	197906	197935	197964	197993	198022
41	198051	198080	198108	198137	198166	198195
42	198224	198253	198282	198311	198340	198369
43	198398	198427	198456	198485	198514	198543
44	198572	198601	198630	198659	198688	198717
45	198746	198775	198804	198833	198862	198891
46	198920	198949	198978	199007	199036	199065
47	199094	199123	199152	199181	199211	199240
48	199260	199289	199317	199346	199375	199404
49	199443	199472	199501	199530	199559	199588
50	199617	199646	199675	199704	199734	199763
51	199792	199821	199850	199879	199908	199937
52	199966	199995	200024	200053	200083	200112
53	200141	200170	200199	200228	200257	200286
54	200315	200344	200374	200403	200432	200461
55	200490	200519	200548	200577	200607	200636
56	200665	200694	200723	200752	200781	200810
57	200840	200869	200898	200927	200956	200985
58	201015	201044	201073	201102	201131	201160
59	201180	201210	201248	201277	201306	201335
Minutes	60'	50'	40'	30'	20'	10'
Co-versed Sine of 53 degrees, or Versed Sine Supplement of 143 degrees.						
Proport.	1"	2"	3"	4"	5"	6"
parts.	3	6	9	12	15	18

Natural Versed Sine of 37 degrees, or Co-versed Sine of 127 degrees.						
Minutes	0'	10'	20'	30'	40'	50'
0	201364	201394	201423	201452	201481	201510
1	201540	201569	201598	201627	201656	201686
2	201715	201744	201773	201802	201832	201861
3	201890	201919	201948	201978	202007	202036
4	202065	202094	202124	202153	202182	202211
5	202241	202270	202299	202328	202358	202387
6	202416	202445	202475	202504	202533	202562
7	202592	202621	202650	202679	202709	202738
8	202767	202796	202826	202855	202884	202913
9	202943	202972	203001	203031	203060	203089
10	203118	203148	203177	203206	203236	203265
11	203294	203324	203353	203382	203411	203441
12	203470	203499	203528	203558	203587	203617
13	203646	203675	203705	203734	203763	203793
14	203822	203851	203881	203910	203939	203969
15	203998	204027	204057	204086	204115	204145
16	204174	204203	204233	204262	204292	204321
17	204350	204380	204409	204438	204468	204497
18	204527	204556	204585	204615	204644	204673
19	204703	204732	204762	204791	204820	204850
20	204879	204909	204938	204967	204997	205026
21	205056	205085	205114	205144	205173	205203
22	205232	205262	205291	205320	205350	205379
23	205409	205438	205468	205497	205526	205556
24	205585	205615	205644	205674	205703	205733
25	205762	205792	205821	205850	205880	205909
26	205939	205968	205998	206027	206057	206086
27	206116	206145	206175	206204	206234	206263
28	206293	206322	206352	206381	206411	206440
29	206470	206499	206529	206558	206588	206617
30	206647	206676	206706	206735	206765	206794
31	206824	206853	206883	206912	206942	206971
32	207001	207030	207060	207090	207119	207149
33	207178	207208	207237	207267	207297	207326
34	207356	207385	207415	207444	207474	207503
35	207533	207562	207592	207622	207651	207681
36	207710	207740	207770	207799	207829	207858
37	207888	207917	207947	207977	208006	208036
38	208065	208095	208125	208154	208184	208213
39	208243	208273	208302	208332	208362	208391
40	208421	208450	208480	208510	208539	208569
41	208599	208628	208658	208688	208717	208747
42	208776	208806	208836	208865	208895	208925
43	208954	208984	209014	209043	209073	209103
44	209132	209162	209192	209221	209251	209281
45	209310	209340	209370	209399	209429	209459
46	209489	209518	209548	209578	209607	209637
47	209667	209696	209726	209756	209786	209815
48	209845	209875	209904	209934	209964	209994
49	210023	210053	210083	210112	210142	210172
50	210202	210231	210261	210291	210321	210350
51	210380	210410	210440	210469	210499	210529
52	210559	210588	210618	210648	210678	210707
53	210737	210767	210797	210827	210856	210886
54	210916	210946	210975	211005	211035	211065
55	211095	211124	211154	211184	211214	211244
56	211273	211303	211333	211363	211393	211423
57	211452	211482	211512	211542	211572	211601
58	211631	211661	211691	211721	211751	211780
59	211810	211840	211870	211900	211930	211959
Minutes	60'	50'	40'	30'	20'	10'
Co-versed Sine of 52 degrees, or Versed Sine Supplement of 142 degrees.						
Proport.	1"	2"	3"	4"	5"	6"
parts.	3	6	9	12	15	18

NATURAL VERSED SINES.

Natural Versed Sine of 38 degrees, or Co-versed Sine of 128 degrees.						Minutes
0"	10"	20"	30"	40"	50"	
211980	212010	212040	212070	212100	212130	59
212168	212198	212228	212258	212288	212318	58
212348	212377	212407	212437	212467	212497	57
212527	212557	212587	212616	212646	212676	56
212706	212736	212766	212796	212826	212856	55
212886	212915	212945	212975	213005	213035	54
213065	213095	213125	213155	213185	213215	53
213244	213274	213304	213334	213364	213394	52
213424	213454	213484	213514	213544	213574	51
213604	213634	213664	213694	213724	213754	50
213783	213813	213843	213873	213903	213933	49
213963	213993	214023	214053	214083	214113	48
214143	214173	214203	214233	214263	214293	47
214323	214353	214383	214413	214443	214473	46
214503	214533	214563	214593	214623	214653	45
214683	214713	214743	214773	214803	214833	44
214863	214893	214923	214953	214983	215013	43
215043	215073	215103	215133	215164	215194	42
215224	215254	215284	215314	215344	215374	41
215404	215434	215464	215494	215524	215554	40
215584	215614	215644	215675	215705	215735	39
215765	215795	215825	215855	215885	215915	38
215945	215975	216006	216036	216066	216096	37
216126	216156	216186	216216	216246	216276	36
216307	216337	216367	216397	216427	216457	35
216487	216517	216548	216578	216608	216638	34
216668	216698	216728	216758	216789	216819	33
216849	216879	216909	216939	216969	217000	32
217030	217060	217090	217120	217150	217181	31
217211	217241	217271	217301	217331	217362	30
217392	217422	217452	217482	217513	217543	29
217573	217603	217633	217664	217694	217724	28
217754	217784	217815	217845	217875	217905	27
217935	217966	217996	218026	218056	218086	26
218117	218147	218177	218207	218238	218268	25
218298	218328	218359	218389	218419	218449	24
218480	218510	218540	218570	218600	218631	23
218661	218691	218722	218752	218782	218812	22
218843	218873	218903	218933	218964	218994	21
219024	219055	219085	219115	219145	219176	20
219206	219236	219267	219297	219327	219357	19
219388	219418	219448	219479	219509	219539	18
219570	219600	219630	219661	219691	219721	17
219751	219782	219812	219842	219873	219903	16
219933	219964	219994	220024	220055	220085	15
220116	220146	220176	220207	220237	220267	14
220298	220328	220358	220389	220419	220449	13
220480	220510	220541	220571	220601	220632	12
220662	220692	220723	220753	220784	220814	11
220844	220875	220905	220936	220966	220996	10
221027	221057	221088	221118	221148	221179	9
221209	221240	221270	221300	221331	221361	8
221392	221422	221452	221483	221513	221544	7
221574	221605	221635	221666	221696	221726	6
221757	221787	221818	221848	221879	221909	5
221940	221970	222000	222031	222061	222092	4
222122	222153	222183	222214	222244	222275	3
222305	222336	222366	222397	222427	222458	2
222488	222519	222549	222580	222610	222641	1
222671	222702	222732	222763	222793	222824	0
60"	50"	40"	30"	20"	10"	Minutes
Co-versed Sine of 51 degrees, or Versed Sine Supplement of 141 degrees.						
oper. 1"	2"	3"	4"	5"	6"	7"
pts. 3	6	9	12	15	18	21
						24
						27

Natural Versed Sine of 39 degrees, or Co-versed Sine of 129 degrees.						Minutes
0"	10"	20"	30"	40"	50"	
222854	222885	222915	222946	222976	223007	59
223037	223068	223098	223129	223159	223190	58
223220	223251	223281	223312	223342	223373	57
223404	223434	223465	223495	223526	223556	56
223587	223617	223648	223678	223709	223740	55
223770	223801	223831	223862	223892	223923	54
223954	223984	224015	224045	224076	224106	53
224137	224168	224198	224229	224259	224290	52
224321	224351	224382	224412	224443	224474	51
224504	224535	224565	224596	224627	224657	50
224688	224719	224749	224780	224810	224841	49
224872	224902	224933	224964	224994	225025	48
225056	225086	225117	225147	225178	225209	47
225239	225270	225301	225331	225362	225393	46
225423	225454	225485	225515	225546	225577	45
225607	225638	225669	225699	225730	225761	44
225791	225822	225853	225883	225914	225945	43
225976	226006	226037	226068	226098	226129	42
226160	226190	226221	226252	226283	226313	41
226344	226375	226406	226436	226467	226498	40
226528	226559	226590	226621	226651	226682	39
226713	226744	226774	226805	226836	226867	38
226897	226928	226959	226990	227020	227051	37
227082	227113	227143	227174	227205	227236	36
227266	227297	227328	227359	227390	227420	35
227451	227482	227513	227543	227574	227605	34
227636	227667	227697	227728	227759	227790	33
227821	227851	227882	227913	227944	227975	32
228005	228036	228067	228098	228129	228160	31
228190	228221	228252	228283	228314	228345	30
228375	228406	228437	228468	228499	228530	29
228560	228591	228622	228653	228684	228715	28
228746	228776	228807	228838	228869	228900	27
228931	228962	228993	229023	229054	229085	26
229116	229147	229178	229209	229240	229270	25
229301	229332	229363	229394	229425	229456	24
229487	229518	229549	229579	229610	229641	23
229672	229703	229734	229765	229796	229827	22
229858	229889	229920	229951	229982	230012	21
230043	230074	230105	230136	230167	230198	20
230229	230260	230291	230322	230353	230384	19
230415	230446	230477	230508	230539	230569	18
230600	230631	230662	230693	230724	230755	17
230786	230817	230848	230879	230910	230941	16
230972	231003	231034	231065	231096	231127	15
231158	231189	231220	231251	231282	231313	14
231344	231375	231406	231437	231468	231499	13
231530	231561	231592	231623	231654	231685	12
231716	231748	231779	231810	231841	231872	11
231903	231934	231965	231996	232027	232058	10
232089	232120	232151	232182	232213	232244	9
232275	232306	232338	232369	232400	232431	8
232462	232493	232524	232555	232586	232617	7
232648	232679	232710	232741	232773	232804	6
232835	232866	232897	232928	232959	232990	5
233021	233053	233084	233115	233146	233177	4
233208	233239	233270	233302	233333	233364	3
233395	233426	233457	233488	233519	233551	2
233582	233613	233644	233675	233706	233737	1
233769	233800	233831	233862	233893	233924	0
60"	50"	40"	30"	20"	10"	Minutes
Co-versed Sine of 50 degrees, or Versed Sine Supplement of 140 degrees.						
Proport. 1"	2"	3"	4"	5"	6"	7"
parts. 3	6	9	12	15	19	22
						25
						28

NATURAL VERSED SINES.

Minutes	Natural Versed Sine of 40 degrees, or Co-versed Sine of 130 degrees.						Minutes
	0'	10'	20'	30'	40'	50'	
0	233956	233987	234018	234049	234080	234111	59
1	234143	234174	234205	234236	234267	234298	58
2	234330	234361	234392	234423	234454	234486	57
3	234517	234548	234579	234610	234642	234673	56
4	234704	234735	234766	234798	234829	234860	55
5	234891	234922	234954	234985	235016	235047	54
6	235079	235110	235141	235172	235204	235235	53
7	235266	235297	235328	235360	235391	235422	52
8	235453	235485	235516	235547	235578	235610	51
9	235641	235672	235704	235735	235766	235797	50
10	235829	235860	235891	235922	235954	235985	49
11	236016	236048	236079	236110	236141	236173	48
12	236204	236235	236267	236298	236329	236360	47
13	236392	236423	236454	236486	236517	236548	46
14	236580	236611	236642	236674	236705	236736	45
15	236768	236799	236830	236862	236893	236924	44
16	236956	236987	237018	237050	237081	237112	43
17	237144	237175	237206	237238	237269	237300	42
18	237332	237363	237394	237426	237457	237488	41
19	237519	237551	237583	237614	237645	237677	40
20	237708	237739	237771	237802	237834	237865	39
21	237896	237928	237959	237991	238022	238053	38
22	238085	238116	238148	238179	238210	238242	37
23	238273	238305	238336	238367	238399	238430	36
24	238462	238493	238525	238556	238587	238619	35
25	238650	238682	238713	238745	238776	238807	34
26	238839	238870	238902	238933	238965	238996	33
27	239028	239059	239090	239122	239153	239185	32
28	239216	239248	239279	239311	239342	239374	31
29	239405	239437	239468	239500	239531	239563	30
30	239594	239626	239657	239689	239720	239751	29
31	239783	239814	239846	239877	239909	239940	28
32	239972	240004	240035	240067	240098	240130	27
33	240161	240193	240224	240256	240287	240319	26
34	240350	240382	240413	240445	240476	240508	25
35	240539	240571	240603	240634	240666	240697	24
36	240729	240760	240792	240823	240855	240886	23
37	240918	240950	240981	241013	241044	241076	22
38	241107	241139	241171	241202	241234	241265	21
39	241297	241328	241360	241392	241423	241455	20
40	241486	241518	241550	241581	241613	241644	19
41	241676	241708	241739	241771	241802	241834	18
42	241866	241897	241929	241961	241992	242024	17
43	242055	242087	242119	242150	242182	242214	16
44	242245	242277	242308	242340	242372	242403	15
45	242435	242467	242498	242530	242562	242593	14
46	242625	242657	242688	242720	242752	242783	13
47	242815	242847	242878	242910	242942	242973	12
48	243005	243037	243068	243100	243132	243163	11
49	243195	243227	243258	243290	243322	243354	10
50	243385	243417	243449	243480	243512	243544	9
51	243575	243607	243639	243671	243702	243734	8
52	243766	243797	243829	243861	243893	243924	7
53	243956	243988	244020	244051	244083	244115	6
54	244147	244178	244210	244242	244274	244305	5
55	244337	244369	244401	244432	244464	244496	4
56	244528	244559	244591	244623	244655	244686	3
57	244718	244750	244782	244814	244845	244877	2
58	244909	244941	244973	245004	245036	245068	1
59	245100	245131	245163	245195	245227	245259	0
Minutes	Co-versed Sine of 49 degrees, or Versed Sine Supplement of 139 degrees.						Minutes
	60'	50'	40'	30'	20'	10'	
Proper.	1"	2"	3"	4"	5"	6"	7"
parts.	3	6	9	13	16	19	22

Minutes	Natural Versed Sine of 41 degrees, or Co-versed Sine of 131 degrees.						Minutes
	0'	10'	20'	30'	40'	50'	
0	245290	245322	245354	245386	245418	245449	59
1	245481	245513	245545	245577	245609	245640	58
2	245672	245704	245736	245768	245800	245831	57
3	245863	245895	245927	245959	245991	246022	56
4	246054	246086	246118	246150	246182	246214	55
5	246245	246277	246309	246341	246373	246405	54
6	246437	246468	246500	246532	246564	246596	53
7	246628	246660	246692	246724	246755	246787	52
8	246819	246851	246883	246915	246947	246979	51
9	247011	247043	247074	247106	247138	247170	50
10	247202	247234	247266	247298	247330	247362	49
11	247394	247425	247457	247489	247521	247553	48
12	247585	247617	247649	247681	247713	247745	47
13	247777	247809	247841	247873	247905	247936	46
14	247968	248000	248032	248064	248096	248128	45
15	248160	248192	248224	248256	248288	248320	44
16	248352	248384	248416	248448	248480	248512	43
17	248544	248576	248608	248640	248672	248704	42
18	248736	248768	248800	248832	248864	248896	41
19	248928	248960	248992	249024	249056	249088	40
20	249120	249152	249184	249216	249248	249280	39
21	249312	249344	249376	249408	249440	249472	38
22	249504	249536	249568	249600	249632	249664	37
23	249697	249729	249761	249793	249825	249857	36
24	249889	249921	249953	249985	250017	250049	35
25	250081	250113	250145	250178	250210	250242	34
26	250274	250306	250338	250370	250402	250434	33
27	250466	250498	250531	250563	250595	250627	32
28	250659	250691	250723	250755	250787	250819	31
29	250852	250884	250916	250948	250980	251012	30
30	251044	251076	251109	251141	251173	251205	29
31	251237	251269	251301	251333	251366	251398	28
32	251430	251462	251494	251526	251559	251591	27
33	251623	251655	251687	251719	251751	251784	26
34	251816	251848	251880	251912	251944	251977	25
35	252009	252041	252073	252105	252138	252170	24
36	252202	252234	252266	252298	252331	252363	23
37	252395	252427	252459	252492	252524	252556	22
38	252588	252621	252653	252685	252717	252749	21
39	252782	252814	252846	252878	252910	252943	20
40	252975	253007	253039	253072	253104	253136	19
41	253168	253201	253233	253265	253297	253330	18
42	253362	253394	253426	253459	253491	253523	17
43	253555	253588	253620	253652	253684	253717	16
44	253749	253781	253814	253846	253878	253910	15
45	253943	253975	254007	254039	254072	254104	14
46	254136	254169	254201	254233	254266	254298	13
47	254330	254362	254395	254427	254459	254492	12
48	254524	254556	254589	254621	254653	254686	11
49	254718	254750	254783	254815	254847	254880	10
50	254912	254944	254977	255009	255041	255074	9
51	255106	255138	255171	255203	255235	255268	8
52	255300	255332	255365	255397	255429	255462	7
53	255494	255527	255559	255591	255624	255656	6
54	255688	255721	255753	255786	255818	255850	5
55	255883	255915	255948	255980	256012	256045	4
56	256077	256110	256142	256174	256207	256239	3
57	256272	256304	256336	256369	256401	256434	2
58	256466	256498	256531	256563	256596	256629	1
59	256661	256693	256725	256758	256790	256823	0
Minutes	Co-versed Sine of 48 degrees, or Versed Sine Supplement of 128 degrees.						Minutes
	60'	50'	40'	30'	20'	10'	
Proper.	1"	2"	3"	4"	5"	6"	7"
parts.	3	6	10	13	16	19	22

NATURAL VERSED SINES.

Minutes		Natural Versed Sine of 42 degrees, or Co-versed Sine of 132 degrees.						Minutes
		0'	10'	20'	30'	40'	50'	
0	256855	256888	256920	256953	256985	257017	50	
1	257050	257082	257115	257147	257180	257213	58	
2	257245	257277	257310	257342	257374	257407	57	
3	257439	257472	257504	257537	257569	257602	56	
4	257634	257667	257699	257732	257764	257797	55	
5	257829	257862	257894	257927	257959	257992	54	
6	258024	258057	258089	258122	258154	258187	53	
7	258219	258252	258284	258317	258349	258382	52	
8	258414	258447	258479	258512	258544	258577	51	
9	258609	258642	258675	258707	258740	258772	50	
10	258805	258837	258870	258902	258935	258967	49	
11	259000	259033	259065	259098	259130	259163	48	
12	259195	259228	259261	259293	259326	259358	47	
13	259391	259423	259456	259489	259521	259554	46	
14	259586	259619	259651	259684	259717	259749	45	
15	259782	259814	259847	259880	259912	259945	44	
16	259977	260010	260043	260075	260108	260141	43	
17	260173	260206	260239	260271	260304	260336	42	
18	260369	260402	260434	260467	260499	260532	41	
19	260565	260597	260630	260663	260695	260728	40	
20	260761	260793	260826	260859	260891	260924	39	
21	260957	260989	261022	261054	261087	261120	38	
22	261152	261185	261218	261251	261283	261316	37	
23	261349	261381	261414	261447	261479	261512	36	
24	261545	261577	261610	261643	261675	261708	35	
25	261741	261774	261806	261839	261872	261904	34	
26	261937	261970	262003	262035	262068	262101	33	
27	262133	262166	262199	262232	262264	262297	32	
28	262325	262358	262391	262424	262456	262489	31	
29	262526	262559	262592	262624	262657	262690	30	
30	262723	262755	262788	262821	262854	262886	29	
31	262919	262952	262985	263018	263050	263083	28	
32	263116	263149	263181	263214	263247	263280	27	
33	263313	263345	263378	263411	263444	263476	26	
34	263509	263542	263575	263608	263640	263673	25	
35	263706	263739	263772	263804	263837	263870	24	
36	263903	263936	263969	264001	264034	264067	23	
37	264100	264133	264166	264198	264231	264264	22	
38	264297	264330	264363	264395	264428	264461	21	
39	264494	264527	264560	264592	264625	264658	20	
40	264691	264724	264757	264790	264822	264855	19	
41	264888	264921	264954	264987	265020	265053	18	
42	265085	265118	265151	265184	265216	265250	17	
43	265283	265316	265348	265381	265414	265447	16	
44	265480	265513	265546	265579	265612	265645	15	
45	265677	265710	265743	265776	265809	265842	14	
46	265875	265908	265941	265974	266007	266040	13	
47	266073	266105	266138	266171	266204	266237	12	
48	266270	266303	266336	266369	266402	266435	11	
49	266468	266501	266534	266567	266600	266633	10	
50	266666	266699	266731	266764	266797	266830	9	
51	266863	266896	266929	266962	266995	267028	8	
52	267061	267094	267127	267160	267193	267226	7	
53	267259	267292	267325	267358	267391	267424	6	
54	267457	267490	267523	267556	267589	267622	5	
55	267655	267688	267721	267754	267787	267820	4	
56	267853	267886	267919	267952	267985	268018	3	
57	268051	268084	268117	268150	268183	268217	2	
58	268250	268283	268316	268349	268382	268415	1	
59	268448	268481	268514	268547	268580	268613	0	
		60'	50'	40'	30'	20'	10'	
Minutes		Co-versed Sine of 47 degrees, or Versed Sine Supplement of 137 degrees.						Minutes
Proport.		1"	2"	3"	4"	5"	6"	7"
parts.		3	7	10	13	16	20	23

Minutes		Natural Versed Sine of 43 degrees, or Co-versed Sine of 133 degrees.						Minutes
		0'	10'	20'	30'	40'	50'	
0	268646	268679	268712	268745	268779	268812	59	
1	268845	268878	268911	268944	268977	269010	58	
2	269043	269076	269109	269142	269176	269209	57	
3	269242	269275	269308	269341	269374	269407	56	
4	269440	269473	269507	269540	269573	269606	55	
5	269639	269672	269705	269738	269771	269805	54	
6	269838	269871	269904	269937	269970	270003	53	
7	270037	270070	270103	270136	270169	270202	52	
8	270235	270269	270302	270335	270368	270401	51	
9	270434	270467	270501	270534	270567	270600	50	
10	270633	270666	270700	270733	270766	270799	49	
11	270832	270865	270899	270932	270965	270998	48	
12	271031	271065	271098	271131	271164	271197	47	
13	271231	271264	271297	271330	271363	271397	46	
14	271430	271463	271496	271529	271563	271596	45	
15	271629	271662	271695	271729	271762	271795	44	
16	271829	271862	271895	271928	271961	271995	43	
17	272028	272061	272094	272128	272161	272194	42	
18	272227	272260	272294	272327	272360	272394	41	
19	272427	272460	272493	272527	272560	272593	40	
20	272626	272660	272693	272726	272759	272793	39	
21	272826	272859	272893	272926	272959	272992	38	
22	273026	273059	273092	273126	273159	273192	37	
23	273225	273259	273292	273325	273359	273392	36	
24	273425	273459	273492	273525	273559	273592	35	
25	273625	273659	273692	273725	273759	273792	34	
26	273825	273859	273892	273925	273959	273992	33	
27	274025	274059	274092	274125	274159	274192	32	
28	274225	274259	274292	274325	274359	274392	31	
29	274425	274459	274492	274526	274559	274592	30	
30	274626	274659	274692	274726	274759	274793	29	
31	274826	274859	274893	274926	274959	274992	28	
32	275026	275059	275092	275126	275159	275192	27	
33	275227	275260	275293	275327	275360	275393	26	
34	275427	275460	275494	275527	275561	275594	25	
35	275628	275661	275694	275728	275761	275795	24	
36	275828	275862	275895	275928	275962	275995	23	
37	276029	276062	276096	276129	276163	276196	22	
38	276229	276263	276296	276330	276363	276397	21	
39	276430	276464	276497	276531	276564	276598	20	
40	276631	276665	276698	276731	276765	276798	19	
41	276832	276865	276899	276932	276966	276999	18	
42	277033	277066	277100	277133	277167	277200	17	
43	277234	277267	277301	277334	277368	277401	16	
44	277435	277468	277502	277535	277569	277603	15	
45	277636	277670	277703	277736	277770	277804	14	
46	277837	277871	277904	277938	277971	278005	13	
47	278038	278072	278106	278139	278173	278206	12	
48	278240	278273	278307	278340	278374	278408	11	
49	278441	278475	278508	278542	278575	278609	10	
50	278643	278676	278710	278743	278777	278810	9	
51	278844	278878	278911	278945	278978	279012	8	
52	279046	279079	279113	279146	279180	279214	7	
53	279247	279281	279314	279348	279382	279415	6	
54	279449	279483	279516	279550	279583	279617	5	
55	279651	279684	279718	279752	279785	279819	4	
56	279852	279886	279920	279953	279987	280021	3	
57	280054	280088	280122	280155	280189	280223	2	
58	280256	280290	280324	280357	280391	280425	1	
59	280458	280492	280525	280559	280593	280627	0	
		60'	50'	40'	30'	20'	10'	
Minutes		Co-versed Sine of 46 degrees, or Versed Sine Supplement of 136 degrees.						Minutes
Proport.		1"	2"	3"	4"	5"	6"	7"
parts.		3	7	10	13	17	20	23

NATURAL VERSED SINES.

Natural Versed Sine of 44 degrees, or Co-versed Sine of 134 degrees.						
Minutes	0'	10'	20'	30'	40'	50'
0	280660	280694	280728	280761	280795	280829
1	280862	280896	280930	280963	280997	281031
2	281064	281098	281132	281166	281199	281233
3	281267	281300	281334	281368	281402	281435
4	281469	281503	281536	281570	281604	281638
5	281671	281705	281739	281772	281806	281840
6	281874	281907	281941	281975	282009	282042
7	282076	282110	282144	282177	282211	282245
8	282279	282312	282346	282380	282414	282448
9	282481	282515	282549	282583	282616	282650
10	282684	282718	282751	282785	282819	282853
11	282887	282920	282954	282988	283022	283056
12	283089	283123	283157	283191	283225	283258
13	283292	283326	283360	283394	283427	283461
14	283495	283529	283563	283597	283630	283664
15	283698	283732	283766	283800	283833	283867
16	283901	283935	283969	284003	284036	284070
17	284104	284138	284172	284206	284240	284273
18	284307	284341	284375	284409	284443	284477
19	284510	284544	284578	284612	284646	284680
20	284714	284748	284781	284815	284849	284883
21	284917	284951	284985	285019	285053	285086
22	285120	285154	285188	285222	285256	285290
23	285324	285358	285392	285426	285459	285493
24	285527	285561	285595	285629	285663	285697
25	285731	285765	285799	285833	285867	285901
26	285934	285968	286002	286036	286070	286104
27	286138	286172	286206	286240	286274	286308
28	286342	286376	286410	286444	286478	286512
29	286546	286580	286614	286648	286682	286716
30	286750	286784	286818	286852	286886	286919
31	286953	286987	287021	287055	287089	287123
32	287157	287191	287225	287259	287293	287327
33	287361	287395	287430	287464	287498	287532
34	287566	287600	287634	287668	287702	287736
35	287770	287804	287838	287872	287906	287940
36	287974	288008	288042	288076	288110	288144
37	288178	288212	288246	288280	288314	288349
38	288383	288417	288451	288485	288519	288553
39	288587	288621	288655	288689	288723	288757
40	288791	288826	288860	288894	288928	288962
41	288996	289030	289064	289098	289132	289166
42	289201	289235	289269	289303	289337	289371
43	289405	289439	289473	289508	289542	289576
44	289610	289644	289678	289712	289746	289780
45	289815	289849	289883	289917	289951	289985
46	290019	290054	290088	290122	290156	290190
47	290224	290258	290293	290327	290361	290395
48	290429	290463	290498	290532	290566	290600
49	290634	290668	290703	290737	290771	290805
50	290839	290874	290908	290942	290976	291010
51	291044	291079	291113	291147	291181	291215
52	291250	291284	291318	291352	291386	291421
53	291455	291489	291523	291558	291592	291626
54	291660	291694	291729	291763	291797	291831
55	291866	291900	291934	291968	292002	292037
56	292071	292105	292139	292174	292208	292242
57	292277	292311	292345	292379	292413	292448
58	292482	292516	292550	292585	292619	292653
59	292688	292722	292756	292790	292825	292859
	60'	50'	40'	30'	20'	10'
Co-versed Sine of 45 degrees, or Versed Sine Supplement of 135 degrees.						
Minutes	0'	10'	20'	30'	40'	50'
0	292893	292928	292962	292996	293030	293065
1	293099	293133	293168	293202	293236	293270
2	293305	293339	293373	293408	293442	293476
3	293511	293545	293579	293613	293648	293682
4	293716	293751	293785	293819	293854	293888
5	293922	293957	293991	294025	294060	294094
6	294128	294163	294197	294231	294266	294300
7	294335	294369	294403	294438	294472	294506
8	294541	294575	294609	294644	294678	294712
9	294747	294781	294816	294850	294884	294919
10	294953	294987	295022	295056	295091	295125
11	295159	295194	295228	295263	295297	295331
12	295366	295400	295435	295469	295503	295538
13	295572	295607	295641	295675	295710	295744
14	295779	295813	295848	295882	295916	295951
15	295985	296020	296054	296089	296123	296157
16	296192	296226	296261	296295	296330	296364
17	296399	296433	296467	296502	296536	296571
18	296605	296640	296674	296709	296743	296778
19	296812	296847	296881	296916	296950	296984
20	297019	297053	297088	297122	297157	297191
21	297226	297260	297295	297329	297364	297398
22	297433	297467	297502	297536	297571	297605
23	297640	297674	297709	297743	297778	297812
24	297847	297881	297916	297951	297985	298020
25	298054	298089	298123	298158	298192	298227
26	298261	298296	298330	298365	298399	298434
27	298469	298503	298538	298572	298607	298641
28	298676	298710	298745	298780	298814	298849
29	298883	298918	298952	298987	299022	299056
30	299091	299125	299160	299194	299229	299264
31	299298	299333	299367	299402	299437	299471
32	299506	299540	299575	299610	299644	299679
33	299713	299748	299783	299817	299852	299886
34	299921	299956	299990	300025	300060	300094
35	300129	300163	300198	300233	300267	300302
36	300337	300371	300406	300441	300475	300510
37	300545	300579	300614	300648	300683	300718
38	300752	300787	300822	300856	300891	300925
39	300960	300995	301030	301064	301099	301134
40	301168	301203	301238	301273	301307	301342
41	301377	301411	301446	301481	301515	301550
42	301585	301619	301654	301689	301724	301758
43	301793	301828	301862	301897	301932	301966
44	302001	302036	302071	302105	302140	302175
45	302210	302244	302279	302314	302348	302383
46	302418	302453	302487	302522	302557	302592
47	302626	302661	302696	302731	302765	302800
48	302835	302870	302904	302939	302974	303009
49	303043	303078	303113	303148	303183	303217
50	303252	303287	303322	303356	303391	303426
51	303461	303496	303530	303565	303600	303635
52	303670	303704	303739	303774	303809	303844
53	303878	303913	303948	303983	304018	304052
54	304087	304122	304157	304192	304226	304261
55	304296	304331	304366	304401	304435	304470
56	304505	304540	304575	304610	304644	304679
57	304714	304749	304784	304819	304854	304888
58	304923	304958	304993	305028	305063	305098
59	305132	305167	305202	305237	305272	305307
	60'	50'	40'	30'	20'	10'
Co-versed Sine of 44 degrees, or Versed Sine Supplement of 134 degrees.						
Minutes	0'	10'	20'	30'	40'	50'
0	292893	292928	292962	292996	293030	293065
1	293099	293133	293168	293202	293236	293270
2	293305	293339	293373	293408	293442	293476
3	293511	293545	293579	293613	293648	293682
4	293716	293751	293785	293819	293854	293888
5	293922	293957	293991	294025	294060	294094
6	294128	294163	294197	294231	294266	294300
7	294335	294369	294403	294438	294472	294506
8	294541	294575	294609	294644	294678	294712
9	294747	294781	294816	294850	294884	294919
10	294953	294987	295022	295056	295091	295125
11	295159	295194	295228	295263	295297	295331
12	295366	295400	295435	295469	295503	295538
13	295572	295607	295641	295675	295710	295744
14	295779	295813	295848	295882	295916	295951
15	295985	296020	296054	296089	296123	296157
16	296192	296226	296261	296295	296330	296364
17	296399	296433	296467	296502	296536	296571
18	296605	296640	296674	296709	296743	296778
19	296812	296847	296881	296916	296950	296984
20	297019	297053	297088	297122	297157	297191
21	297226	297260	297295	297329	297364	297398
22	297433	297467	297502	297536	297571	297605
23	297640	297674	297709	297743	297778	297812
24	297847	297881	297916	297951	297985	298020
25	298054	298089	298123	298158	298192	298227
26	298261	298296	298330	298365	298399	298434
27	298469	298503	298538	298572	298607	298641
28	298676	298710	298745	298780	298814	298849
29	298883	298918	298952	298987	299022	299056
30	299091	299125	299160	299194	299229	299264
31	299298	299333	299367	299402	299437	299471
32	299506	299540	299575	299610	299644	299679
33	299713	299748	299783	299817	299852	299886
34	299921	299956	299990	300025	300060	300094
35	300129	300163	300198	300233	300267	300302
36	300337	300371	300			

NATURAL VERSED SINES.

Natural Versed Sine of 46 degrees, or Co-versed Sine of 136 degrees.						Minutes
10'	20'	30'	40'	50'		
12	305377	305411	305446	305481	305516	59
11	305586	305621	305656	305690	305725	58
10	305795	305830	305865	305900	305935	57
9	306005	306039	306074	306109	306144	56
8	306214	306249	306284	306319	306354	55
7	306424	306458	306493	306528	306563	54
6	306633	306668	306703	306738	306773	53
5	306843	306878	306913	306948	306983	52
4	307052	307087	307122	307157	307192	51
3	307262	307297	307332	307367	307402	50
2	307472	307507	307542	307577	307612	49
1	307682	307717	307752	307787	307822	48
0	307892	307927	307962	307997	308032	47
59	308102	308137	308172	308207	308242	46
58	308312	308347	308382	308417	308452	45
57	308522	308557	308592	308627	308662	44
56	308732	308767	308802	308837	308872	43
55	308942	308977	309012	309047	309083	42
54	309153	309188	309223	309258	309293	41
53	309363	309398	309433	309468	309503	40
52	309573	309608	309644	309679	309714	39
51	309784	309819	309854	309889	309924	38
50	309994	310029	310065	310100	310135	37
49	310205	310240	310275	310310	310345	36
48	310416	310451	310486	310521	310556	35
47	310626	310661	310697	310732	310767	34
46	310837	310872	310907	310942	310978	33
45	311048	311083	311118	311153	311188	32
44	311259	311294	311329	311364	311399	31
43	311470	311505	311540	311575	311610	30
42	311681	311716	311751	311786	311821	29
41	311892	311927	311962	311997	312032	28
40	312103	312138	312173	312208	312243	27
39	312314	312349	312384	312419	312455	26
38	312525	312560	312595	312630	312666	25
37	312736	312771	312807	312842	312877	24
36	312948	312983	313018	313053	313089	23
35	313159	313194	313229	313265	313300	22
34	313371	313406	313441	313476	313512	21
33	313582	313617	313653	313688	313723	20
32	313794	313829	313864	313899	313935	19
31	314005	314041	314076	314111	314146	18
30	314217	314252	314288	314323	314358	17
29	314429	314464	314499	314535	314570	16
28	314640	314676	314711	314746	314782	15
27	314852	314888	314923	314958	314994	14
26	315064	315100	315135	315170	315206	13
25	315276	315312	315347	315382	315418	12
24	315488	315524	315559	315594	315630	11
23	315700	315736	315771	315806	315842	10
22	315912	315948	315983	316019	316054	9
21	316125	316160	316195	316231	316266	8
20	316337	316372	316408	316443	316478	7
19	316549	316585	316620	316655	316691	6
18	316762	316797	316832	316868	316903	5
17	316974	317009	317045	317080	317116	4
16	317187	317222	317257	317293	317328	3
15	317399	317435	317470	317505	317541	2
14	317612	317647	317683	317718	317753	1
13	317824	317860	317895	317931	317966	0
12	50"	40"	30"	20"	10"	Minutes
Natural Versed Sine of 43 degrees, or Versed Sine Supplement of 133 degrees.						Minutes
1"	2"	3"	4"	5"	6"	7"
4	7	11	14	18	21	25
28	32					
Natural Versed Sine of 47 degrees, or Co-versed Sine of 137 degrees.						Minutes
0"	10"	20"	30"	40"	50"	
0	318002	318037	318073	318108	318143	59
1	318214	318250	318285	318321	318356	58
2	318427	318463	318498	318534	318569	57
3	318640	318676	318711	318747	318782	56
4	318853	318889	318924	318960	318995	55
5	319066	319102	319137	319173	319208	54
6	319279	319315	319350	319386	319421	53
7	319492	319528	319563	319599	319634	52
8	319705	319741	319776	319812	319848	51
9	319919	319954	319990	320025	320061	50
10	320132	320167	320203	320239	320274	49
11	320345	320381	320416	320452	320488	48
12	320559	320594	320630	320665	320701	47
13	320772	320808	320843	320879	320914	46
14	320986	321021	321057	321092	321128	45
15	321199	321235	321270	321306	321342	44
16	321413	321448	321484	321520	321555	43
17	321627	321662	321698	321733	321769	42
18	321840	321876	321912	321947	321983	41
19	322054	322090	322125	322161	322197	40
20	322268	322304	322339	322375	322411	39
21	322482	322518	322553	322589	322624	38
22	322696	322732	322767	322803	322839	37
23	322910	322946	322981	323017	323053	36
24	323124	323160	323195	323231	323267	35
25	323338	323374	323410	323445	323481	34
26	323552	323588	323624	323660	323695	33
27	323767	323802	323838	323874	323910	32
28	323981	324017	324052	324088	324124	31
29	324195	324231	324267	324303	324338	30
30	324410	324446	324481	324517	324553	29
31	324624	324660	324696	324732	324767	28
32	324839	324875	324910	324946	324982	27
33	325053	325089	325125	325161	325197	26
34	325268	325304	325340	325375	325411	25
35	325483	325519	325554	325590	325626	24
36	325698	325733	325769	325805	325841	23
37	325912	325948	325984	326020	326056	22
38	326127	326163	326199	326235	326271	21
39	326342	326378	326414	326450	326486	20
40	326557	326593	326629	326665	326701	19
41	326772	326808	326844	326880	326916	18
42	326987	327023	327059	327095	327131	17
43	327203	327239	327274	327310	327346	16
44	327418	327454	327490	327526	327561	15
45	327633	327669	327705	327741	327777	14
46	327849	327884	327920	327956	327992	13
47	328064	328100	328136	328172	328208	12
48	328279	328315	328351	328387	328423	11
49	328495	328531	328567	328603	328639	10
50	328711	328746	328782	328818	328854	9
51	328926	328962	328998	329034	329070	8
52	329142	329178	329214	329250	329286	7
53	329358	329394	329430	329465	329501	6
54	329573	329609	329645	329681	329717	5
55	329789	329825	329861	329897	329933	4
56	330005	330041	330077	330113	330149	3
57	330221	330257	330293	330329	330365	2
58	330437	330473	330509	330545	330581	1
59	330653	330689	330725	330761	330797	0
60"	50"	40"	30"	20"	10"	Minutes
Co-versed Sine of 42 degrees, or Versed Sine Supplement of 132 degrees.						Minutes
Proport.	1"	2"	3"	4"	5"	6"
parts.	4	7	11	14	18	21
	25	29	32			

NATURAL VERSED. SINES.

Natural Versed Sine of 48 degrees, or Co-versed Sine of 138 degrees.											
Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"	20"	30"
0	330869	330905	330941	330977	331014	331050	59	343941	343978	344014	344051
1	331086	331122	331158	331194	331230	331266	58	344161	344197	344234	344270
2	331302	331338	331374	331410	331446	331482	57	344380	344417	344453	344490
3	331518	331554	331590	331626	331662	331698	56	344600	344636	344673	344710
4	331735	331771	331807	331843	331879	331915	55	344820	344856	344893	344929
5	331951	331987	332023	332059	332095	332131	54	345039	345076	345113	345149
6	332167	332204	332240	332276	332312	332348	53	345259	345296	345332	345369
7	332384	332420	332456	332492	332528	332564	52	345479	345516	345552	345589
8	332601	332637	332673	332709	332745	332781	51	345699	345736	345772	345809
9	332817	332853	332889	332926	332962	332998	50	345919	345956	345992	346029
10	333034	333070	333106	333142	333178	333215	49	346139	346176	346212	346249
11	333251	333287	333323	333359	333395	333431	48	346359	346396	346433	346469
12	333468	333504	333540	333576	333612	333648	47	346579	346616	346653	346689
13	333684	333721	333757	333793	333829	333865	46	346800	346836	346873	346910
14	333901	333938	333974	334010	334046	334082	45	347020	347057	347093	347130
15	334118	334155	334191	334227	334263	334299	44	347240	347277	347314	347350
16	334335	334372	334408	334444	334480	334516	43	347461	347497	347534	347571
17	334552	334589	334625	334661	334697	334733	42	347681	347718	347755	347791
18	334770	334806	334842	334878	334914	334951	41	347902	347938	347975	348012
19	334987	335023	335059	335095	335132	335168	40	348122	348159	348196	348232
20	335204	335240	335277	335313	335349	335385	39	348343	348380	348416	348453
21	335421	335458	335494	335530	335566	335603	38	348563	348600	348637	348674
22	335639	335675	335711	335748	335784	335820	37	348784	348821	348858	348895
23	335856	335893	335929	335965	336001	336038	36	349005	349042	349079	349115
24	336074	336110	336146	336183	336219	336255	35	349226	349263	349299	349336
25	336291	336328	336364	336400	336436	336473	34	349447	349483	349520	349557
26	336509	336545	336582	336618	336654	336690	33	349668	349704	349741	349778
27	336727	336763	336799	336835	336872	336908	32	349889	349925	349962	349999
28	336944	336981	337017	337053	337090	337126	31	350110	350147	350183	350220
29	337162	337198	337235	337271	337307	337344	30	350331	350368	350405	350441
30	337380	337416	337453	337489	337525	337562	29	350552	350589	350626	350663
31	337798	337834	337870	337907	337943	337979	28	350773	350810	350847	350884
32	337816	337852	337888	337925	337961	337997	27	350994	351031	351068	351105
33	338034	338070	338106	338143	338179	338216	26	351216	351253	351290	351326
34	338252	338288	338325	338361	338397	338434	25	351437	351474	351511	351548
35	338470	338506	338543	338579	338615	338652	24	351659	351696	351732	351769
36	338688	338725	338761	338797	338834	338870	23	351880	351917	351954	351991
37	338906	338943	338979	339015	339052	339088	22	352102	352139	352176	352212
38	339125	339161	339197	339234	339270	339307	21	352323	352360	352397	352434
39	339343	339379	339416	339452	339489	339525	20	352545	352582	352619	352656
40	339561	339598	339634	339671	339707	339743	19	352767	352804	352841	352878
41	339780	339816	339853	339889	339925	339962	18	352988	353025	353062	353099
42	339998	340035	340071	340108	340144	340180	17	353210	353247	353284	353321
43	340217	340253	340290	340326	340363	340399	16	353432	353469	353506	353543
44	340435	340472	340508	340545	340581	340618	15	353654	353691	353728	353765
45	340654	340691	340727	340764	340800	340836	14	353876	353913	353950	353987
46	340873	340909	340946	340982	341019	341055	13	354098	354135	354172	354209
47	341092	341128	341165	341201	341238	341274	12	354320	354357	354394	354431
48	341311	341347	341383	341420	341456	341493	11	354542	354579	354616	354653
49	341529	341566	341602	341639	341675	341712	10	354764	354802	354839	354876
50	341748	341785	341821	341858	341894	341931	9	354987	355024	355061	355098
51	341967	342004	342040	342077	342113	342150	8	355209	355246	355283	355320
52	342186	342223	342259	342296	342333	342369	7	355431	355469	355506	355543
53	342406	342442	342479	342515	342552	342588	6	355654	355691	355728	355765
54	342625	342661	342698	342734	342771	342807	5	355876	355913	355951	355988
55	342844	342881	342917	342954	342990	343027	4	356099	356136	356173	356210
56	343063	343100	343136	343173	343209	343246	3	356321	356359	356396	356433
57	343283	343319	343356	343392	343429	343465	2	356544	356581	356618	356655
58	343502	343539	343575	343612	343648	343685	1	356767	356804	356841	356878
59	343721	343758	343795	343831	343868	343904	0	356989	357027	357064	357101
	60"	50"	40"	30"	20"	10"	Minutes	60"	50"	40"	30"
Co-versed Sine of 41 degrees, or Versed Sine Supplement of 131 degrees.											
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9" parts. { 4 7 11 15 18 22 25 29 33											

Natural Versed Sine of 49 degrees, or Co-versed Sine of 139 degrees.											
Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"	20"	30"
0	343941	343978	344014	344051	344087	344124	59	346139	346176	346212	346249
1	344161	344197	344234	344270	344307	344344	58	346359	346396	346433	346469
2	344380	344417	344453	344490	344527	344563	57	346579	346616	346653	346689
3	344600	344636	344673	344710	344746	344783	56	346800	346836	346873	346910
4	344820	344856	344893	344929	344966	345003	55	347020	347057	347093	347130
5	345039	345076	345113	345149	345186	345223	54	347240	347277	347314	347350
6	345259	345296	345332	345369	345406	345442	53	347461	347497	347534	347571
7	345479	345516	345552	345589	345626	345662	52	347681	347718	347755	347791
8	345699	345736	345772	345809	345846	345882	51	347902	347938	347975	348012
9	345919	345956	345992	346029	346066	346102	50	348122	348159	348196	348232
10	346139	346176	346212	346249	346286	346323	49	348343	348380	348416	348453
11	346359	346396	346433	346469	346506	346543	48	348563	348600	348637	348674
12	346579	346616	346653	346689	346726	346763	47	348784	348821	348858	348895
13	346800	346836	346873	346910	346946	346983	46	349005	349042	349079	349115
14	347020	347057	347093	347130	347167	347204	45	349226	349263	349299	349336
15	347240	347277	347314	347350	347387	347424	44	349447	349483	349520	349557
16	347461	347497	347534	347571	347608	347644	43	349668	349704	349741	349778
17	347681	347718	347755	347791	347828	347865	42	349889	349925	349962	349999
18	347902	347938	347975	348012	348049	348085	41	350110	350147	350183	350220
19	348122	348159	348196	348232	348269	348306	40	350331	350368	350405	350441
20	348343	348380	348416	348453	348490	348527	39	350552	350589	350626	350663
21	348563	348600	348637	348674	348711	348748	38	350773	350810	350847	350884
22	348784	348821	348858	348895	348931	348968	37	350994	351031	351068	351105
23	349005	349042	349079	349115	349152	349189	36	351216	351253	351290	351326
24											

NATURAL VERSED SINES.

4 Versed Sine of 50 degrees, or versed Sine of 140 degrees.						Natural Versed Sine of 51 degrees, or Co-versed Sine of 141 degrees.					
10°	20°	30°	40°	50°	Minutes	0°	10°	20°	30°	40°	50°
7250	357287	357324	357361	357398	59	0	370680	370718	370755	370793	370830
7472	357510	357547	357584	357621	58	1	370906	370944	370981	371019	371056
7695	357732	357770	357807	357844	57	2	371132	371170	371207	371245	371283
7918	357955	357993	358030	358067	56	3	371358	371396	371433	371471	371509
8141	358179	358216	358253	358290	55	4	371584	371622	371660	371697	371735
8364	358402	358439	358476	358513	54	5	371811	371848	371886	371924	371961
8588	358625	358662	358699	358736	53	6	372037	372075	372112	372150	372188
8811	358848	358885	358922	358960	52	7	372263	372301	372339	372377	372414
9034	359071	359108	359146	359183	51	8	372490	372528	372565	372603	372641
9257	359295	359332	359369	359406	50	9	372716	372754	372792	372830	372867
9481	359518	359555	359592	359630	49	10	372943	372981	373018	373056	373094
9704	359741	359779	359816	359853	48	11	373170	373207	373245	373283	373321
9928	359965	360002	360039	360077	47	12	373396	373434	373472	373510	373547
0151	360188	360226	360263	360300	46	13	373623	373661	373699	373736	373774
0375	360412	360449	360486	360524	45	14	373850	373887	373925	373963	374001
0598	360636	360673	360710	360747	44	15	374077	374114	374152	374190	374228
0822	360859	360897	360934	360971	43	16	374303	374341	374379	374417	374455
1046	361083	361120	361158	361195	42	17	374530	374568	374606	374644	374682
1269	361307	361344	361381	361419	41	18	374757	374795	374833	374871	374909
1493	361531	361568	361605	361643	40	19	374984	375022	375060	375098	375136
1717	361755	361792	361829	361867	39	20	375211	375249	375287	375325	375363
1941	361979	362016	362053	362091	38	21	375439	375476	375514	375552	375590
2165	362203	362240	362277	362315	37	22	375666	375704	375742	375779	375817
2389	362427	362464	362501	362539	36	23	375893	375931	375969	376007	376045
2613	362651	362688	362725	362763	35	24	376120	376158	376196	376234	376272
2838	362875	362912	362950	362987	34	25	376348	376386	376424	376461	376499
3062	363099	363137	363174	363211	33	26	376575	376613	376651	376689	376727
3286	363323	363361	363398	363436	32	27	376803	376841	376878	376916	376954
3510	363548	363585	363623	363660	31	28	377030	377068	377106	377144	377182
3735	363772	363810	363847	363884	30	29	377258	377296	377334	377372	377410
3959	363997	364034	364071	364109	29	30	377485	377523	377561	377599	377637
4184	364221	364259	364296	364333	28	31	377713	377751	377789	377827	377865
4408	364446	364483	364521	364558	27	32	377941	377979	378017	378055	378093
4633	364670	364708	364745	364783	26	33	378169	378207	378244	378282	378320
4857	364895	364932	364970	365007	25	34	378396	378434	378472	378510	378548
5082	365120	365157	365195	365232	24	35	378624	378662	378700	378738	378776
5307	365344	365382	365419	365457	23	36	378852	378890	378928	378966	379004
5532	365569	365607	365644	365682	22	37	379080	379118	379156	379194	379232
5757	365794	365832	365869	365907	21	38	379308	379346	379384	379422	379460
5982	366019	366057	366095	366132	20	39	379536	379574	379612	379650	379688
6207	366244	366282	366319	366357	19	40	379765	379803	379841	379879	379917
6432	366469	366507	366544	366582	18	41	379993	380031	380069	380107	380145
6657	366694	366732	366769	366807	17	42	380221	380259	380297	380335	380373
6882	366919	366957	366994	367032	16	43	380449	380487	380525	380563	380601
7107	367145	367182	367220	367257	15	44	380678	380716	380754	380792	380830
7332	367370	367407	367445	367482	14	45	380906	380944	380982	381020	381058
7558	367595	367633	367670	367708	13	46	381135	381173	381211	381249	381287
7783	367820	367858	367896	367933	12	47	381363	381401	381439	381477	381515
8008	368046	368084	368121	368159	11	48	381592	381630	381668	381706	381744
8234	368271	368309	368346	368384	10	49	381820	381858	381896	381935	381973
8459	368497	368534	368572	368610	9	50	382049	382087	382125	382163	382201
8685	368722	368760	368798	368835	8	51	382278	382316	382354	382392	382430
8910	368948	368986	369023	369061	7	52	382506	382545	382583	382621	382659
9136	369174	369211	369249	369287	6	53	382735	382773	382812	382850	382888
9362	369399	369437	369475	369512	5	54	382964	383002	383040	383079	383117
9588	369625	369663	369701	369738	4	55	383193	383231	383269	383308	383346
9813	369851	369889	369926	369964	3	56	383422	383460	383498	383537	383575
10039	370077	370115	370152	370190	2	57	383651	383689	383727	383766	383804
10265	370303	370341	370378	370416	1	58	383880	383918	383957	383995	384033
10491	370529	370567	370604	370642	0	59	384109	384148	384186	384224	384262
50°	40°	30°	20°	10°	Minutes	60°	50°	40°	30°	20°	10°
Sine of 39 degrees, or Versed Supplement of 129 degrees.						Co-versed Sine of 38 degrees, or Versed Sine Supplement of 128 degrees.					
2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°
7	11	15	19	22	26	30	34	38	42	46	50
Proport. 1° 2° 3° 4° 5° 6° 7° 8° 9°						parts. 4 8 11 15 19 23 27 30 34					

NATURAL VERSED SINES.

Natural Versed Sine of 52 degrees, or Co-versed Sine of 142 degrees.							Minutes		
0'	10'	20'	30'	40'	50'				
0	384339	384377	384415	384453	384491	384530	59		
1	384568	384606	384644	384682	384721	384759	58		
2	384797	384835	384874	384912	384950	384988	57		
3	385026	385065	385103	385141	385179	385218	56		
4	385256	385294	385332	385371	385409	385447	55		
5	385485	385524	385562	385600	385638	385677	54		
6	385715	385753	385791	385830	385868	385906	53		
7	385944	385983	386021	386059	386097	386136	52		
8	386174	386212	386251	386289	386327	386365	51		
9	386404	386442	386480	386518	386557	386595	50		
10	386633	386672	386710	386748	386787	386825	49		
11	386863	386901	386940	386978	387016	387055	48		
12	387093	387131	387170	387208	387246	387285	47		
13	387323	387361	387399	387438	387476	387515	46		
14	387553	387591	387629	387668	387706	387744	45		
15	387783	387821	387859	387898	387936	387974	44		
16	388013	388051	388089	388128	388166	388204	43		
17	388243	388281	388320	388358	388396	388435	42		
18	388473	388511	388550	388588	388626	388665	41		
19	388703	388742	388780	388818	388857	388895	40		
20	388933	388972	389010	389049	389087	389125	39		
21	389164	389202	389240	389279	389317	389356	38		
22	389394	389432	389471	389509	389548	389586	37		
23	389624	389663	389701	389740	389778	389816	36		
24	389855	389893	389932	389970	390008	390047	35		
25	390085	390124	390162	390201	390239	390277	34		
26	390316	390354	390393	390431	390470	390508	33		
27	390546	390585	390623	390662	390700	390739	32		
28	390777	390816	390854	390892	390931	390969	31		
29	391008	391046	391085	391123	391162	391200	30		
30	391239	391277	391315	391354	391392	391431	29		
31	391469	391508	391546	391585	391623	391662	28		
32	391700	391739	391777	391816	391854	391893	27		
33	391931	391970	392008	392047	392085	392124	26		
34	392162	392201	392239	392278	392316	392355	25		
35	392393	392432	392470	392509	392547	392586	24		
36	392624	392663	392701	392740	392778	392817	23		
37	392855	392894	392932	392971	393009	393048	22		
38	393086	393125	393164	393202	393241	393279	21		
39	393318	393356	393395	393433	393472	393510	20		
40	393549	393587	393626	393665	393703	393742	19		
41	393780	393819	393857	393896	393934	393973	18		
42	394010	394050	394089	394127	394166	394204	17		
43	394243	394282	394320	394359	394397	394436	16		
44	394474	394513	394552	394590	394629	394668	15		
45	394706	394745	394783	394822	394860	394899	14		
46	394938	394976	395015	395053	395092	395131	13		
47	395169	395208	395246	395285	395324	395362	12		
48	395401	395440	395478	395517	395555	395594	11		
49	395633	395671	395710	395748	395787	395826	10		
50	395864	395903	395942	395980	396019	396058	9		
51	396096	396135	396174	396212	396251	396289	8		
52	396328	396367	396405	396444	396483	396521	7		
53	396560	396599	396637	396676	396715	396753	6		
54	396792	396831	396869	396908	396947	396985	5		
55	397024	397063	397101	397140	397179	397217	4		
56	397256	397295	397334	397373	397411	397450	3		
57	397488	397527	397566	397604	397643	397682	2		
58	397720	397759	397798	397837	397875	397914	1		
59	397953	397991	398030	398069	398108	398146	0		
Minutes	60'	50'	40'	30'	20'	10'	Minutes		
Co-versed Sine of 37 degrees, or Versed Sine Supplement of 127 degrees.							Minutes		
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	4	8	12	15	19	23	27	31	35

Natural Versed Sine of 53 degrees, or Co-versed Sine of 143 degrees.							Minutes		
0'	10'	20'	30'	40'	50'				
0	398185	398224	398262	398301	398340	398379	59		
1	398417	398456	398495	398534	398572	398611	58		
2	398650	398688	398727	398766	398805	398844	57		
3	398882	398921	398960	398998	399037	399076	56		
4	399115	399153	399192	399231	399270	399309	55		
5	399347	399386	399425	399463	399502	399541	54		
6	399580	399619	399657	399696	399735	399774	53		
7	399812	399851	399890	399929	399968	400007	52		
8	400045	400084	400123	400161	400200	400239	51		
9	400278	400317	400355	400394	400433	400472	50		
10	400511	400549	400588	400627	400666	400705	49		
11	400744	400782	400821	400860	400899	400938	48		
12	400976	401015	401054	401093	401132	401171	47		
13	401209	401248	401287	401326	401365	401404	46		
14	401442	401481	401520	401559	401598	401637	45		
15	401675	401714	401753	401792	401831	401870	44		
16	401908	401947	401986	402025	402064	402103	43		
17	402142	402181	402219	402258	402297	402336	42		
18	402375	402414	402453	402491	402530	402569	41		
19	402608	402647	402686	402725	402764	402803	40		
20	402841	402880	402919	402958	402997	403036	39		
21	403075	403114	403153	403191	403230	403269	38		
22	403308	403347	403386	403425	403464	403503	37		
23	403542	403581	403619	403658	403697	403736	36		
24	403775	403814	403853	403892	403931	403970	35		
25	404009	404048	404087	404125	404164	404203	34		
26	404242	404281	404320	404359	404398	404437	33		
27	404476	404515	404554	404593	404632	404671	32		
28	404710	404749	404788	404827	404866	404905	31		
29	404943	404982	405021	405060	405099	405138	30		
30	405177	405216	405255	405294	405333	405372	29		
31	405411	405450	405489	405528	405567	405606	28		
32	405645	405684	405723	405762	405801	405840	27		
33	405879	405918	405957	405996	406035	406074	26		
34	406113	406152	406191	406230	406269	406308	25		
35	406347	406386	406425	406464	406503	406542	24		
36	406581	406620	406659	406698	406737	406776	23		
37	406815	406854	406893	406932	406971	407010	22		
38	407049	407088	407127	407166	407205	407244	21		
39	407284	407323	407362	407401	407440	407479	20		
40	407518	407557	407596	407635	407674	407713	19		
41	407752	407791	407831	407870	407909	407948	18		
42	407987	408026	408065	408104	408143	408182	17		
43	408221	408260	408299	408338	408377	408416	16		
44	408456	408495	408534	408573	408612	408651	15		
45	408690	408729	408768	408807	408846	408885	14		
46	408925	408964	409003	409042	409081	409120	13		
47	409160	409199	409238	409277	409316	409355	12		
48	409394	409433	409472	409511	409550	409589	11		
49	409629	409668	409707	409746	409785	409824	10		
50	409864	409903	409942	409981	410020	410059	9		
51	410099	410138	410177	410216	410255	410294	8		
52	410334	410373	410412	410451	410490	410529	7		
53	410569	410608	410647	410686	410725	410764	6		
54	410804	410843	410882	410921	410960	411000	5		
55	411039	411078	411117	411156	411195	411234	4		
56	411274	411313	411352	411391	411430	411470	3		
57	411509	411548	411587	411626	411665	411704	2		
58	411744	411783	411822	411861	411900	411940	1		
59	411979	412019	412058	412097	412136	412175	0		
Minutes	60'	50'	40'	30'	20'	10'	Minutes		
Co-versed Sine of 36 degrees, or Versed Sine Supplement of 126 degrees.							Minutes		
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	4	8	12	16	19	23	27	31	35

TABLE XXVII.

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NATURAL VERSED SINES.

Natural Versed Sine of 54 degrees, or Co-versed Sine of 144 degrees.							Natural Versed Sine of 55 degrees, or Co-versed Sine of 145 degrees.													
Minutes	0'	10'	20'	30'	40'	50'	Minutes	0'	10'	20'	30'	40'	50'	Minutes						
0	412215	412254	412293	412332	412372	412411	59	426424	426463	426503	426543	426582	426622	59						
1	412450	412489	412529	412568	412607	412646	58	426662	426702	426741	426781	426821	426860	58						
2	412686	412725	412764	412803	412842	412882	57	426900	426940	426980	427019	427059	427099	57						
3	412921	412960	412999	413039	413078	413117	56	427139	427178	427218	427258	427298	427337	56						
4	413156	413196	413235	413274	413314	413353	55	427377	427417	427457	427496	427536	427576	55						
5	413392	413431	413471	413510	413549	413588	54	427616	427655	427695	427735	427775	427814	54						
6	413628	413667	413706	413745	413785	413824	53	427854	427894	427934	427973	428013	428053	53						
7	413863	413903	413942	413981	414020	414060	52	428093	428132	428172	428212	428252	428292	52						
8	414099	414138	414178	414217	414256	414295	51	428331	428371	428411	428451	428490	428530	51						
9	414335	414374	414413	414453	414492	414531	50	428570	428610	428650	428689	428729	428769	50						
10	414571	414610	414649	414688	414728	414767	49	428809	428849	428888	428928	428968	429008	49						
11	414806	414846	414885	414924	414964	415003	48	429048	429087	429127	429167	429207	429247	48						
12	415042	415082	415121	415160	415200	415239	47	429286	429326	429366	429406	429446	429486	47						
13	415278	415318	415357	415396	415436	415475	46	429525	429565	429605	429645	429685	429724	46						
14	415514	415554	415593	415632	415672	415711	45	429764	429804	429844	429884	429924	429963	45						
15	415750	415790	415829	415868	415908	415947	44	430003	430043	430083	430123	430163	430202	44						
16	415986	416026	416065	416105	416144	416183	43	430242	430282	430322	430362	430402	430441	43						
17	416223	416262	416301	416341	416380	416419	42	430481	430521	430561	430601	430641	430681	42						
18	416459	416498	416538	416577	416616	416656	41	430720	430760	430800	430840	430880	430920	41						
19	416695	416734	416774	416813	416853	416892	40	430960	431000	431039	431079	431119	431159	40						
20	416931	416971	417010	417050	417089	417128	39	431199	431239	431279	431319	431358	431398	39						
21	417168	417207	417246	417286	417325	417365	38	431438	431478	431518	431558	431598	431638	38						
22	417404	417443	417483	417522	417562	417601	37	431677	431717	431757	431797	431837	431877	37						
23	417641	417680	417719	417759	417798	417838	36	431917	431957	431997	432037	432076	432116	36						
24	417877	417916	417956	417995	418035	418074	35	432156	432196	432236	432276	432316	432356	35						
25	418114	418153	418192	418232	418271	418311	34	432396	432436	432476	432515	432555	432595	34						
26	418350	418390	418429	418468	418508	418547	33	432635	432675	432715	432755	432795	432835	33						
27	418587	418626	418666	418705	418745	418784	32	432875	432915	432955	432995	433035	433074	32						
28	418824	418863	418902	418942	418981	419021	31	433114	433154	433194	433234	433274	433314	31						
29	419060	419100	419139	419179	419218	419258	30	433354	433394	433434	433474	433514	433554	30						
30	419297	419337	419376	419415	419455	419494	29	433594	433634	433674	433714	433754	433794	29						
31	419534	419573	419613	419652	419692	419731	28	433834	433873	433913	433953	433993	434033	28						
32	419771	419810	419850	419889	419929	419968	27	434073	434113	434153	434193	434233	434273	27						
33	420006	420046	420086	420126	420166	420205	26	434313	434353	434393	434433	434473	434513	26						
34	420245	420284	420324	420363	420403	420442	25	434553	434593	434633	434673	434713	434753	25						
35	420482	420521	420561	420600	420640	420679	24	434793	434833	434873	434913	434953	434993	24						
36	420719	420758	420798	420837	420877	420916	23	435033	435073	435113	435153	435193	435233	23						
37	420956	420995	421035	421075	421114	421154	22	435273	435313	435353	435393	435433	435473	22						
38	421193	421233	421272	421312	421351	421391	21	435513	435553	435593	435633	435673	435713	21						
39	421430	421470	421509	421549	421589	421628	20	435753	435793	435833	435873	435913	435953	20						
40	421668	421707	421747	421786	421826	421865	19	435993	436033	436074	436114	436154	436194	19						
41	421905	421945	421984	422024	422063	422103	18	436334	436374	436414	436454	436494	436534	18						
42	422142	422182	422222	422261	422301	422340	17	436574	436614	436654	436694	436734	436774	17						
43	422380	422419	422459	422499	422538	422578	16	436814	436854	436894	436934	436974	437014	16						
44	422617	422657	422696	422736	422776	422815	15	437054	437094	437134	437174	437214	437254	15						
45	422855	422894	422934	422974	423013	423053	14	437294	437334	437374	437414	437454	437494	14						
46	423092	423132	423172	423211	423251	423290	13	437534	437574	437614	437654	437694	437734	13						
47	423330	423370	423409	423449	423488	423528	12	437774	437814	437854	437894	437934	437974	12						
48	423568	423607	423647	423687	423726	423766	11	438014	438054	438094	438134	438174	438214	11						
49	423805	423845	423885	423924	423964	424004	10	438254	438294	438334	438374	438414	438454	10						
50	424043	424083	424122	424162	424202	424241	9	438494	438534	438574	438614	438654	438694	9						
51	424281	424321	424360	424400	424440	424479	8	438734	438774	438814	438854	438894	438934	8						
52	424519	424559	424598	424638	424677	424717	7	438974	439014	439054	439094	439134	439174	7						
53	424757	424796	424836	424876	424915	424955	6	439214	439254	439294	439334	439374	439414	6						
54	424995	425034	425074	425114	425153	425193	5	439454	439494	439534	439574	439614	439654	5						
55	425233	425272	425312	425352	425391	425431	4	439694	439734	439774	439814	439854	439894	4						
56	425471	425511	425550	425590	425630	425669	3	439934	439974	439993	439993	440004	440014	3						
57	425709	425749	425788	425828	425868	425907	2	440084	440124	440164	440204	440244	440284	2						
58	425947	425987	426026	426066	426106	426146	1	440325	440365	440405	440445	440486	440526	1						
59	426185	426225	426265	426304	426344	426384	0	440566	440606	440646	440687	440727	440767	0						
Minutes	60'	50'	40'	30'	20'	10'	Minutes	60'	50'	40'	30'	20'	10'	Minutes						
Co-versed Sine of 35 degrees, or Versed Sine Supplement of 125 degrees.							Co-versed Sine of 34 degrees, or Versed Sine Supplement of 124 degrees.													
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"													
parts. { 4 8 12 16 20 24 28 32 35							parts. { 4 8 12 16 20 24 28 32 36													

NATURAL VERSED SINES.

Minutes		Natural Versed Sine of 56 degrees, or Co-versed sine of 146 degrees.						Minutes	
		0°	10'	20'	30'	40'	50'		
0	440807	440847	440887	440928	440968	441008		59	
1	441048	441088	441129	441169	441209	441249		58	
2	441290	441330	441370	441410	441450	441491		57	
3	441531	441571	441611	441651	441692	441732		56	
4	441772	441812	441853	441893	441933	441973		55	
5	442013	442054	442094	442134	442174	442215		54	
6	442255	442295	442335	442376	442416	442456		53	
7	442496	442537	442577	442617	442657	442698		52	
8	442738	442778	442818	442859	442899	442939		51	
9	442979	443020	443060	443100	443140	443181		50	
10	443221	443261	443302	443342	443382	443422		49	
11	443463	443503	443543	443584	443624	443664		48	
12	443704	443745	443785	443825	443866	443906		47	
13	443946	443986	444027	444067	444107	444148		46	
14	444188	444228	444269	444309	444349	444389		45	
15	444430	444470	444510	444551	444591	444631		44	
16	444672	444712	444752	444793	444833	444873		43	
17	444914	444954	444994	445035	445075	445115		42	
18	445156	445196	445236	445277	445317	445357		41	
19	445398	445438	445478	445519	445559	445599		40	
20	445640	445680	445720	445761	445801	445841		39	
21	445882	445922	445963	446003	446043	446084		38	
22	446124	446164	446205	446245	446285	446326		37	
23	446366	446407	446447	446487	446528	446568		36	
24	446608	446649	446689	446730	446770	446810		35	
25	446851	446891	446932	446972	447012	447053		34	
26	447093	447134	447174	447214	447255	447295		33	
27	447336	447376	447416	447457	447497	447538		32	
28	447578	447618	447659	447699	447740	447780		31	
29	447820	447861	447901	447942	447982	448023		30	
30	448063	448103	448144	448184	448225	448265		29	
31	448306	448346	448386	448427	448467	448508		28	
32	448548	448589	448629	448670	448710	448750		27	
33	448791	448831	448872	448912	448953	448993		26	
34	449034	449074	449115	449155	449196	449236		25	
35	449276	449317	449357	449398	449438	449479		24	
36	449519	449560	449600	449641	449681	449722		23	
37	449762	449803	449843	449884	449924	449965		22	
38	450005	450046	450086	450127	450167	450208		21	
39	450248	450289	450329	450370	450410	450451		20	
40	450491	450532	450572	450613	450653	450694		19	
41	450734	450775	450815	450856	450896	450937		18	
42	450977	451018	451058	451099	451139	451180		17	
43	451220	451261	451301	451342	451382	451423		16	
44	451464	451504	451545	451585	451626	451666		15	
45	451707	451747	451788	451828	451869	451910		14	
46	451950	451991	452031	452072	452112	452153		13	
47	452193	452234	452275	452315	452356	452396		12	
48	452437	452477	452518	452558	452599	452640		11	
49	452680	452721	452761	452802	452843	452883		10	
50	452924	452964	453005	453045	453086	453127		9	
51	453167	453208	453248	453289	453330	453370		8	
52	453411	453451	453492	453533	453573	453614		7	
53	453654	453695	453736	453776	453817	453857		6	
54	453898	453939	453979	454020	454061	454101		5	
55	454142	454182	454223	454264	454304	454345		4	
56	454385	454426	454467	454507	454548	454589		3	
57	454629	454670	454711	454751	454792	454832		2	
58	454873	454914	454954	454995	455036	455076		1	
59	455117	455158	455198	455239	455280	455320		0	
Minutes		60°	50'	40'	30'	20'	10'	Minutes	
		Co-versed Sine of 33 degrees, or Versed Sine Supplement of 123 degrees.							
Proport.		1"	2"	3"	4"	5"	6"	7"	8"
parts.		4	8	12	16	20	24	28	32

Minutes		Natural Versed Sine of 57 degrees, or Co-versed Sine of 147 degrees.						Minutes	
		0°	10'	20'	30'	40'	50'		
0	455361	455402	455442	455483	455524	455564		59	
1	455605	455646	455686	455727	455768	455808		58	
2	455849	455890	455930	455971	456012	456052		57	
3	456093	456134	456174	456215	456256	456296		56	
4	456337	456378	456419	456459	456500	456541		55	
5	456581	456622	456663	456703	456744	456785		54	
6	456826	456866	456907	456948	456988	457029		53	
7	457070	457111	457151	457192	457233	457273		52	
8	457314	457355	457396	457436	457477	457518		51	
9	457558	457599	457640	457681	457721	457762		50	
10	457803	457844	457884	457925	457966	458007		49	
11	458047	458088	458129	458170	458210	458251		48	
12	458292	458333	458373	458414	458455	458496		47	
13	458536	458577	458618	458659	458699	458740		46	
14	458781	458822	458863	458903	458944	458985		45	
15	459026	459066	459107	459148	459189	459229		44	
16	459270	459311	459352	459393	459433	459474		43	
17	459515	459556	459596	459637	459678	459719		42	
18	459760	459800	459841	459882	459923	459964		41	
19	460004	460045	460086	460127	460168	460209		40	
20	460249	460290	460331	460372	460413	460453		39	
21	460494	460535	460576	460617	460658	460698		38	
22	460739	460780	460821	460862	460903	460943		37	
23	460984	461025	461066	461107	461148	461188		36	
24	461229	461270	461311	461352	461393	461433		35	
25	461474	461515	461556	461597	461638	461679		34	
26	461719	461760	461801	461842	461883	461924		33	
27	461965	462005	462046	462087	462128	462169		32	
28	462210	462251	462292	462333	462373	462414		31	
29	462455	462496	462537	462578	462619	462660		30	
30	462700	462741	462782	462823	462864	462905		29	
31	462946	462987	463028	463068	463109	463150		28	
32	463191	463232	463273	463314	463355	463396		27	
33	463437	463478	463518	463559	463600	463641		26	
34	463682	463723	463764	463805	463846	463887		25	
35	463928	463969	464009	464050	464091	464132		24	
36	464173	464214	464255	464296	464337	464378		23	
37	464419	464460	464501	464542	464583	464624		22	
38	464665	464705	464746	464787	464828	464869		21	
39	464910	464951	464992	465033	465074	465115		20	
40	465156	465197	465238	465279	465320	465361		19	
41	465402	465443	465484	465525	465566	465607		18	
42	465648	465689	465730	465771	465812	465853		17	
43	465894	465935	465976	466017	466058	466099		16	
44	466140	466181	466222	466263	466304	466345		15	
45	466386	466427	466468	466509	466550	466591		14	
46	466632	466673	466714	466755	466796	466837		13	
47	466878	466919	466960	467001	467042	467083		12	
48	467124	467165	467206	467247	467288	467329		11	
49	467370	467411	467452	467493	467534	467575		10	
50	467616	467657	467698	467739	467780	467821		9	
51	467862	467903	467944	467986	468027	468068		8	
52	468109	468150	468191	468232	468273	468314		7	
53	468355	468396	468437	468478	468519	468560		6	
54	468601	468642	468684	468725	468766	468807		5	
55	468848	468889	468930	468971	469012	469053		4	
56	469094	469135	469177	469218	469259	469300		3	
57	469341	469382	469423	469464	469505	469546		2	
58	469587	469629	469670	469711	469752	469793		1	
59	469834	469875	469916	469957	469999	470040		0	
Minutes		60°	50'	40'	30'	20'	10'	Minutes	
		Co-versed Sine of 32 degrees, or Versed Sine Supplement of 122 degrees							
Proport.		1"	2"	3"	4"	5"	6"	7"	8"
parts.		4	8	12	16	20	25	29	33

TABLE XXVII.

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NATURAL VERSED SINES.

Minutes		Natural Versed Sine of 58 degrees, or Co-versed sine of 148 degrees.						Minutes
		0°	10°	20°	30°	40°	50°	
0	470081	470122	470163	470204	470245	470286	470327	59
1	470327	470369	470410	470451	470492	470533	470574	58
2	470574	470615	470656	470698	470739	470780	470821	57
3	470821	470862	470903	470944	470985	471027	471068	56
4	471068	471109	471150	471191	471232	471274	471315	55
5	471315	471356	471397	471438	471479	471521	471562	54
6	471562	471603	471644	471685	471726	471767	471808	53
7	471808	471849	471890	471932	471973	472014	472055	52
8	472055	472097	472138	472179	472220	472262	472303	51
9	472303	472344	472385	472426	472467	472509	472550	50
10	472550	472591	472632	472673	472715	472756	472797	49
11	472797	472838	472879	472921	472962	473003	473044	48
12	473044	473085	473127	473168	473209	473250	473291	47
13	473291	473333	473374	473415	473456	473498	473539	46
14	473539	473580	473621	473662	473704	473745	473786	45
15	473786	473827	473869	473910	473951	473992	474033	44
16	474033	474075	474116	474157	474198	474240	474281	43
17	474281	474322	474363	474405	474446	474487	474528	42
18	474528	474570	474611	474652	474693	474735	474776	41
19	474776	474817	474858	474900	474941	474982	475023	40
20	475023	475065	475106	475147	475188	475230	475271	39
21	475271	475312	475353	475395	475436	475477	475518	38
22	475518	475559	475601	475642	475683	475725	475766	37
23	475766	475808	475849	475890	475932	475973	476014	36
24	476014	476055	476097	476138	476179	476221	476262	35
25	476262	476303	476344	476386	476427	476468	476509	34
26	476509	476551	476592	476633	476675	476716	476757	33
27	476757	476799	476840	476882	476923	476964	477005	32
28	477005	477047	477088	477129	477171	477212	477253	31
29	477253	477295	477336	477377	477419	477460	477501	30
30	477501	477543	477584	477625	477667	477708	477749	29
31	477749	477791	477832	477874	477915	477956	477997	28
32	477997	478039	478080	478122	478163	478204	478245	27
33	478245	478287	478328	478370	478411	478453	478494	26
34	478494	478535	478577	478618	478659	478701	478742	25
35	478742	478783	478825	478866	478908	478949	478990	24
36	478990	479032	479073	479115	479156	479197	479238	23
37	479238	479280	479321	479363	479404	479446	479487	22
38	479487	479528	479570	479611	479653	479694	479735	21
39	479735	479777	479818	479860	479901	479942	479983	20
40	479983	480025	480066	480108	480149	480191	480232	19
41	480232	480274	480315	480357	480398	480439	480481	18
42	480481	480522	480564	480605	480647	480688	480729	17
43	480729	480771	480812	480854	480895	480937	480978	16
44	480978	481020	481061	481102	481144	481185	481226	15
45	481226	481268	481310	481351	481393	481434	481475	14
46	481475	481517	481558	481600	481641	481683	481724	13
47	481724	481766	481807	481849	481890	481932	481973	12
48	481973	482014	482056	482097	482139	482180	482222	11
49	482222	482263	482305	482346	482388	482429	482471	10
50	482471	482512	482554	482595	482637	482678	482719	9
51	482719	482761	482803	482844	482886	482927	482968	8
52	482968	483010	483052	483093	483135	483176	483218	7
53	483218	483259	483301	483342	483384	483425	483467	6
54	483467	483508	483550	483591	483633	483674	483715	5
55	483715	483757	483799	483840	483882	483923	483964	4
56	483964	484006	484048	484090	484131	484173	484214	3
57	484214	484256	484297	484339	484380	484422	484463	2
58	484463	484505	484546	484588	484630	484671	484713	1
59	484713	484754	484796	484837	484879	484920	484961	0
Minutes		60°	50°	40°	30°	20°	10°	Minutes
		Co-versed Sine of 31 degrees, or Versed Sine Supplement of 121 degrees.						
		Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"						
		parts. { 4 8 12 17 21 25 29 33 37						

Minutes		Natural Versed Sine of 59 degrees, or Co-versed Sine of 149 degrees.						Minutes
		0°	10°	20°	30°	40°	50°	
0	484962	485003	485045	485087	485128	485170	485211	59
1	485211	485253	485294	485336	485378	485419	485461	58
2	485461	485502	485544	485585	485627	485669	485710	57
3	485710	485752	485793	485835	485876	485918	485960	56
4	485960	486001	486043	486084	486126	486168	486209	55
5	486209	486251	486292	486334	486376	486417	486459	54
6	486459	486500	486542	486584	486625	486667	486708	53
7	486708	486750	486792	486833	486875	486916	486958	52
8	486958	487000	487042	487083	487125	487166	487208	51
9	487208	487249	487291	487333	487374	487416	487457	50
10	487457	487499	487541	487582	487624	487665	487707	49
11	487707	487749	487791	487832	487874	487915	487957	48
12	487957	487999	488040	488082	488124	488165	488207	47
13	488207	488249	488290	488332	488374	488415	488457	46
14	488457	488499	488540	488582	488624	488665	488707	45
15	488707	488749	488790	488832	488874	488915	488957	44
16	488957	488999	489040	489082	489124	489165	489207	43
17	489207	489249	489290	489332	489374	489415	489457	42
18	489457	489499	489540	489582	489624	489665	489707	41
19	489707	489749	489791	489832	489874	489915	489957	40
20	489957	489999	490040	490082	490124	490165	490207	39
21	490207	490249	490291	490332	490374	490415	490457	38
22	490457	490500	490541	490582	490624	490665	490707	37
23	490707	490750	490792	490833	490875	490916	490958	36
24	490958	491000	491042	491083	491125	491166	491208	35
25	491208	491251	491292	491334	491376	491417	491459	34
26	491459	491501	491543	491584	491626	491668	491709	33
27	491709	491752	491793	491835	491877	491919	491960	32
28	491960	492002	492044	492086	492127	492169	492211	31
29	492211	492253	492295	492336	492378	492420	492461	30
30	492461	492503	492545	492587	492629	492671	492712	29
31	492712	492754	492796	492838	492879	492921	492963	28
32	492963	493005	493047	493088	493130	493172	493214	27
33	493214	493256	493297	493339	493381	493423	493464	26
34	493464	493506	493548	493590	493632	493674	493715	25
35	493715	493757	493799	493841	493883	493925	493967	24
36	493967	494008	494050	494092	494134	494175	494217	23
37	494217	494259	494301	494343	494384	494426	494468	22
38	494468	494510	494552	494594	494636	494677	494719	21
39	494719	494761	494803	494845	494886	494928	494970	20
40	494970	495012	495054	495096	495138	495179	495221	19
41	495221	495263	495305	495347	495389	495431	495472	18
42	495472	495514	495556	495598	495640	495682	495724	17
43	495724	495766	495807	495849	495891	495933	495975	16
44	495975	496017	496059	496100	496142	496184	496226	15
45	496226	496268	496310	496352	496394	496435	496477	14
46	496477	496519	496561	496603	496645	496687	496729	13
47	496729	496771	496812	496854	496896	496938	496980	12
48	496980	497022	497064	497106	497148	497190	497231	11
49	497231	497273	497315	497357	497399	497441	497483	10
50	497483	497525	497567	497609	497651	497693	497734	9
51	497734	497776	497818	497860	497902	497944	497986	8
52	497986	498028	498070	498112	498154	498196	498238	7
53	498238	498280	498322	498364	498405	498447	498489	6
54	498489	498531	498573	498615	498657	498699	498741	5
55	498741	498783	498825	498867	498909	498951	498993	4
56	498993	499035	499077	499119	499161	499203	499245	3
57	499245	499287	499329	499371	499413	499455	499497	2
58	499497	499539	499581	499623	499665	499707	499749	

NATURAL VERSED SINES.

Natural Versed Sine of 60 degrees, or Co-versed Sine of 150 degrees.								
Minutes	0"	10"	20"	30"	40"	50"	Minutes	
0	500000	500042	500084	500126	500168	500210	59	
1	500252	500294	500336	500378	500420	500462	58	
2	500504	500546	500588	500630	500672	500714	57	
3	500756	500798	500840	500882	500924	500966	56	
4	501008	501050	501092	501134	501176	501218	55	
5	501260	501302	501344	501386	501428	501470	54	
6	501512	501554	501596	501638	501680	501722	53	
7	501764	501806	501849	501891	501933	501975	52	
8	502017	502059	502101	502143	502185	502227	51	
9	502269	502311	502353	502395	502437	502479	50	
10	502521	502563	502605	502647	502690	502732	49	
11	502774	502816	502858	502900	502942	502984	48	
12	503026	503068	503110	503152	503194	503236	47	
13	503278	503321	503363	503405	503447	503489	46	
14	503531	503573	503615	503657	503699	503741	45	
15	503783	503826	503868	503910	503952	503994	44	
16	504036	504078	504120	504162	504204	504247	43	
17	504289	504331	504373	504415	504457	504499	42	
18	504541	504583	504626	504668	504710	504752	41	
19	504794	504836	504878	504920	504963	505005	40	
20	505047	505089	505131	505173	505215	505257	39	
21	505300	505342	505384	505426	505468	505510	38	
22	505552	505595	505637	505679	505721	505763	37	
23	505805	505847	505889	505932	505974	506016	36	
24	506058	506100	506142	506185	506227	506269	35	
25	506311	506353	506395	506438	506480	506522	34	
26	506564	506606	506648	506691	506733	506775	33	
27	506817	506859	506901	506944	506986	507028	32	
28	507070	507112	507155	507197	507239	507281	31	
29	507323	507365	507408	507450	507492	507534	30	
30	507576	507619	507661	507703	507745	507787	29	
31	507830	507872	507914	507956	507998	508041	28	
32	508083	508125	508167	508210	508252	508294	27	
33	508336	508378	508421	508463	508505	508547	26	
34	508589	508632	508674	508716	508758	508801	25	
35	508843	508885	508927	508970	509012	509054	24	
36	509096	509138	509181	509223	509265	509307	23	
37	509350	509392	509434	509476	509519	509561	22	
38	509603	509645	509688	509730	509772	509814	21	
39	509857	509899	509941	509983	510026	510068	20	
40	510110	510153	510195	510237	510279	510322	19	
41	510364	510406	510448	510491	510533	510575	18	
42	510618	510660	510702	510744	510787	510829	17	
43	510871	510914	510956	510998	511040	511083	16	
44	511125	511167	511210	511252	511294	511337	15	
45	511379	511421	511463	511506	511548	511590	14	
46	511633	511675	511717	511760	511802	511844	13	
47	511886	511929	511971	512013	512056	512098	12	
48	512140	512183	512225	512267	512310	512352	11	
49	512394	512437	512479	512521	512564	512606	10	
50	512648	512691	512733	512775	512818	512860	9	
51	512902	512945	512987	513029	513072	513114	8	
52	513156	513199	513241	513283	513326	513368	7	
53	513410	513453	513495	513538	513580	513622	6	
54	513665	513707	513749	513792	513834	513876	5	
55	513919	513961	514004	514046	514088	514131	4	
56	514173	514215	514258	514300	514343	514385	3	
57	514427	514470	514512	514554	514597	514639	2	
58	514682	514724	514766	514809	514851	514894	1	
59	514936	514978	515021	515063	515106	515148	0	
Minutes	60"	50"	40"	30"	20"	10"	Minutes	
Co-versed Sine of 29 degrees, or Versed Sine Supplement of 119 degrees.								
Proport.	1"	2"	3"	4"	5"	6"	7"	8"
parts.	4	8	13	17	21	25	30	34

Natural Versed Sine of 61 degrees, or Co-versed Sine of 151 degrees.								
Minutes	0"	10"	20"	30"	40"	50"	Minutes	
0	515190	515233	515275	515318	515360	515402	59	
1	515445	515487	515530	515572	515614	515657	58	
2	515699	515742	515784	515827	515869	515911	57	
3	515954	515996	516039	516081	516124	516166	56	
4	516208	516251	516293	516336	516378	516421	55	
5	516463	516505	516548	516590	516633	516675	54	
6	516718	516760	516803	516845	516887	516930	53	
7	516972	517015	517057	517100	517142	517185	52	
8	517227	517269	517312	517354	517397	517439	51	
9	517482	517524	517567	517609	517652	517694	50	
10	517737	517779	517822	517864	517906	517949	49	
11	517991	518034	518076	518119	518161	518204	48	
12	518246	518289	518331	518374	518416	518459	47	
13	518501	518544	518586	518629	518671	518714	46	
14	518756	518799	518841	518884	518926	518969	45	
15	519011	519054	519096	519139	519181	519224	44	
16	519266	519309	519351	519394	519436	519479	43	
17	519521	519564	519606	519649	519691	519734	42	
18	519777	519819	519862	519904	519947	519989	41	
19	520032	520074	520117	520159	520202	520244	40	
20	520287	520329	520372	520415	520457	520500	39	
21	520542	520585	520627	520670	520712	520755	38	
22	520797	520840	520883	520925	520968	521010	37	
23	521053	521095	521138	521180	521223	521266	36	
24	521308	521351	521393	521436	521478	521521	35	
25	521564	521606	521649	521691	521734	521776	34	
26	521819	521862	521904	521947	521989	522032	33	
27	522075	522117	522160	522202	522245	522287	32	
28	522330	522373	522415	522458	522500	522543	31	
29	522586	522628	522671	522713	522756	522799	30	
30	522841	522884	522926	522969	523012	523054	29	
31	523097	523140	523182	523225	523267	523310	28	
32	523353	523395	523438	523480	523523	523566	27	
33	523608	523651	523693	523736	523778	523821	26	
34	523864	523907	523949	523992	524035	524077	25	
35	524120	524163	524205	524248	524291	524333	24	
36	524376	524418	524461	524504	524546	524589	23	
37	524632	524674	524717	524760	524802	524845	22	
38	524888	524930	524973	525016	525058	525101	21	
39	525144	525186	525229	525272	525314	525357	20	
40	525400	525442	525485	525528	525570	525613	19	
41	525656	525698	525741	525784	525826	525869	18	
42	525912	525954	525997	526040	526083	526125	17	
43	526168	526211	526253	526296	526339	526381	16	
44	526424	526467	526510	526552	526595	526638	15	
45	526680	526723	526766	526808	526851	526894	14	
46	526937	526979	527022	527065	527107	527150	13	
47	527193	527236	527278	527321	527364	527407	12	
48	527449	527492	527535	527577	527620	527663	11	
49	527706	527748	527791	527834	527877	527919	10	
50	527962	528005	528048	528091	528133	528176	9	
51	528218	528261	528304	528347	528389	528432	8	
52	528475	528518	528561	528603	528646	528689	7	
53	528732	528774	528817	528860	528903	528945	6	
54	528988	529031	529074	529116	529159	529202	5	
55	529245	529288	529330	529373	529416	529459	4	
56	529501	529544	529587	529630	529673	529715	3	
57	529758	529801	529844	529886	529929	529972	2	
58	530015	530058	530100	530143	530186	530229	1	
59	530272	530314	530357	530400	530443	530486	0	
Minutes	60"	50"	40"	30"	20"	10"	Minutes	
Co-versed Sine of 28 degrees, or Versed Sine Supplement of 118 degrees.								
Proport.	1"	2"	3"	4"	5"	6"	7"	8"
parts.	4	9	13	17	21	26	30	34

NATURAL VERSED SINES.

Natural Versed Sine of 62 degrees, or Co-versed Sine of 152 degrees.							Natural Versed Sine of 63 degrees, or Co-versed Sine of 153 degrees.													
Minutes	0'	10'	20'	30'	40'	50'	Minutes	0'	10'	20'	30'	40'	50'	Minutes						
0	530528	530571	530614	530657	530700	530742	50	546010	546053	546096	546139	546182	546225	50						
1	530785	530828	530871	530914	530957	530999	51	546269	546312	546355	546398	546442	546485	51						
2	531042	531085	531128	531171	531213	531256	52	546528	546571	546614	546658	546701	546744	52						
3	531299	531342	531385	531428	531470	531513	53	546787	546830	546874	546917	546960	547003	53						
4	531556	531599	531642	531685	531727	531770	54	547047	547090	547133	547176	547219	547263	54						
5	531813	531856	531899	531942	531984	532027	55	547306	547349	547392	547436	547479	547522	55						
6	532070	532113	532156	532199	532242	532284	56	547565	547609	547652	547695	547738	547781	56						
7	532327	532370	532413	532456	532499	532542	57	547825	547868	547911	547954	547998	548041	57						
8	532584	532627	532670	532713	532756	532799	58	548084	548127	548171	548214	548257	548300	58						
9	532842	532884	532927	532970	533013	533056	59	548344	548387	548430	548473	548517	548560	59						
10	533099	533142	533185	533227	533270	533313	40	548603	548647	548690	548733	548776	548820	40						
11	533356	533399	533442	533485	533528	533570	41	548863	548906	548949	548993	549036	549079	41						
12	533613	533656	533699	533742	533785	533828	42	549122	549166	549209	549252	549296	549339	42						
13	533871	533914	533956	533999	534042	534085	43	549382	549425	549469	549512	549555	549599	43						
14	534128	534171	534214	534257	534300	534343	44	549642	549685	549728	549772	549815	549858	44						
15	534385	534428	534471	534514	534557	534600	45	549902	549945	549988	550031	550075	550118	45						
16	534643	534686	534729	534772	534815	534858	46	550161	550205	550248	550291	550335	550378	46						
17	534900	534943	534986	535029	535072	535115	47	550421	550464	550508	550551	550594	550638	47						
18	535158	535201	535244	535287	535330	535373	48	550681	550724	550768	550811	550854	550898	48						
19	535416	535458	535501	535544	535587	535630	49	550941	550984	551028	551071	551114	551157	49						
20	535673	535716	535759	535802	535845	535888	39	551201	551244	551287	551331	551374	551417	39						
21	535931	535974	536017	536060	536103	536146	38	551461	551504	551547	551591	551634	551677	38						
22	536188	536231	536274	536317	536360	536403	37	551721	551764	551807	551851	551894	551937	37						
23	536446	536489	536532	536575	536618	536661	36	551981	552024	552068	552111	552154	552198	36						
24	536704	536747	536790	536833	536876	536919	35	552241	552284	552328	552371	552414	552458	35						
25	536962	537005	537048	537091	537134	537177	34	552501	552544	552588	552631	552674	552718	34						
26	537220	537263	537306	537349	537392	537435	33	552761	552805	552848	552891	552935	552978	33						
27	537477	537520	537563	537606	537649	537692	32	553021	553065	553108	553151	553195	553238	32						
28	537735	537778	537821	537864	537907	537950	31	553282	553325	553368	553412	553455	553498	31						
29	537993	538036	538079	538122	538165	538208	30	553542	553585	553629	553672	553715	553759	30						
30	538251	538294	538337	538380	538423	538466	29	553802	553846	553889	553932	553976	554019	29						
31	538509	538552	538595	538638	538681	538724	28	554063	554106	554149	554193	554236	554280	28						
32	538768	538811	538854	538897	538940	538983	27	554323	554366	554410	554453	554497	554540	27						
33	539026	539069	539112	539155	539198	539241	26	554583	554627	554670	554714	554757	554800	26						
34	539284	539327	539370	539413	539456	539499	25	554844	554887	554931	554974	555017	555061	25						
35	539542	539585	539628	539671	539714	539757	24	555104	555148	555191	555235	555278	555321	24						
36	539800	539843	539886	539929	539972	540015	23	555365	555408	555452	555495	555539	555582	23						
37	540058	540101	540145	540188	540231	540274	22	555625	555669	555712	555756	555799	555843	22						
38	540317	540360	540403	540446	540489	540532	21	555886	555929	555973	556016	556060	556103	21						
39	540575	540618	540661	540704	540747	540790	20	556147	556190	556234	556277	556320	556364	20						
40	540834	540877	540920	540963	541006	541049	19	556407	556451	556494	556538	556581	556625	19						
41	541092	541135	541178	541221	541264	541307	18	556668	556712	556755	556798	556842	556885	18						
42	541356	541399	541442	541485	541528	541571	17	556929	556972	557016	557059	557103	557146	17						
43	541609	541652	541695	541738	541781	541824	16	557190	557233	557277	557320	557363	557407	16						
44	541867	541911	541954	541997	542040	542083	15	557450	557494	557537	557581	557624	557668	15						
45	542126	542169	542212	542255	542298	542342	14	557711	557755	557798	557842	557885	557929	14						
46	542385	542428	542471	542514	542557	542600	13	557972	558016	558059	558103	558146	558190	13						
47	542643	542686	542729	542773	542816	542859	12	558233	558277	558320	558364	558407	558451	12						
48	542902	542945	542988	543031	543075	543118	11	558494	558538	558581	558625	558668	558712	11						
49	543161	543204	543247	543290	543333	543376	10	558755	558799	558842	558886	558929	558973	10						
50	543420	543463	543506	543549	543592	543635	9	559016	559060	559103	559147	559190	559234	9						
51	543678	543722	543765	543808	543851	543894	8	559277	559321	559364	559408	559451	559495	8						
52	543937	543980	544024	544067	544110	544153	7	559538	559582	559626	559669	559713	559756	7						
53	544196	544239	544282	544326	544369	544412	6	559800	559843	559887	559930	559974	560017	6						
54	544455	544498	544541	544585	544628	544671	5	560061	560104	560148	560191	560235	560279	5						
55	544714	544757	544800	544844	544887	544930	4	560322	560366	560409	560453	560496	560540	4						
56	544973	545016	545059	545103	545146	545189	3	560583	560627	560670	560714	560758	560801	3						
57	545232	545275	545318	545362	545405	545448	2	560845	560888	560932	560975	561019	561062	2						
58	545491	545534	545578	545621	545664	545707	1	561106	561150	561193	561237	561280	561324	1						
59	545750	545794	545837	545880	545923	545966	0	561367	561411	561455	561498	561542	561585	0						
60' 50' 40' 30' 20' 10'							60' 50' 40' 30' 20' 10'							60' 50' 40' 30' 20' 10'						
Co-versed Sine of 27 degrees, or Versed Sine Supplement of 117 degrees.							Co-versed Sine of 26 degrees, or Versed Sine Supplement of 116 degrees.							Co-versed Sine of 26 degrees, or Versed Sine Supplement of 116 degrees.						
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. } 4 9 13 17 21 26 30 34 39							parts. } 4 9 13 17 22 26 30 35 39							parts. } 4 9 13 17 22 26 30 35 39						

NATURAL VERSED SINES.

Natural Versed Sine of 64 degrees, or Co-versed sine of 154 degrees.						
Minutes	0"	10"	20"	30"	40"	50"
0	561629	561672	561716	561760	561803	561847
1	561890	561934	561977	562021	562065	562108
2	562152	562195	562239	562283	562326	562370
3	562413	562457	562501	562544	562588	562631
4	562675	562719	562762	562806	562849	562893
5	562937	562980	563024	563067	563111	563155
6	563198	563242	563285	563329	563373	563416
7	563460	563504	563547	563591	563634	563678
8	563722	563765	563809	563853	563896	563940
9	563983	564027	564071	564114	564158	564202
10	564245	564289	564332	564376	564420	564463
11	564507	564551	564594	564638	564682	564725
12	564769	564813	564856	564900	564944	564987
13	565031	565074	565118	565162	565205	565249
14	565293	565336	565380	565424	565467	565511
15	565555	565598	565642	565686	565729	565773
16	565817	565860	565904	565948	565991	566035
17	566079	566123	566166	566210	566254	566297
18	566341	566385	566428	566472	566516	566559
19	566603	566647	566690	566734	566778	566822
20	566885	566929	566973	567016	567060	567104
21	567127	567171	567215	567259	567302	567346
22	567390	567433	567477	567521	567565	567608
23	567652	567696	567739	567783	567827	567871
24	567914	567958	568002	568045	568089	568133
25	568177	568220	568264	568308	568352	568395
26	568439	568483	568526	568570	568614	568658
27	568701	568745	568789	568833	568876	568920
28	568964	569008	569051	569095	569139	569183
29	569226	569270	569314	569358	569401	569445
30	569489	569533	569576	569620	569664	569708
31	569751	569795	569839	569883	569927	569970
32	570014	570058	570102	570145	570189	570233
33	570277	570320	570364	570408	570452	570496
34	570539	570583	570627	570671	570715	570758
35	570802	570846	570890	570933	570977	571021
36	571065	571109	571152	571196	571240	571284
37	571328	571371	571415	571459	571503	571547
38	571590	571634	571678	571722	571766	571810
39	571853	571897	571941	571985	572029	572072
40	572116	572160	572204	572248	572292	572335
41	572379	572423	572467	572511	572555	572598
42	572642	572686	572730	572774	572817	572861
43	572905	572949	572993	573037	573080	573124
44	573168	573212	573256	573300	573344	573387
45	573431	573475	573519	573563	573607	573651
46	573694	573738	573782	573826	573870	573914
47	573958	574001	574045	574089	574133	574177
48	574221	574265	574308	574352	574396	574440
49	574484	574528	574572	574616	574659	574703
50	574747	574791	574835	574879	574923	574967
51	575010	575054	575098	575142	575186	575230
52	575274	575318	575362	575405	575449	575493
53	575537	575581	575625	575669	575713	575757
54	575801	575844	575888	575932	575976	576020
55	576064	576108	576152	576196	576240	576284
56	576327	576371	576415	576459	576503	576547
57	576591	576635	576679	576723	576767	576811
58	576855	576899	576943	576987	577031	577074
59	577118	577162	577206	577250	577294	577338
60	577382	577426	577470	577514	577558	577601
1	577645	577689	577733	577777	577821	577865
2	577909	577953	577997	578041	578085	578129
3	578173	578217	578261	578305	578349	578393
4	578437	578481	578524	578568	578612	578656
5	578700	578744	578788	578832	578876	578920
6	578964	579008	579052	579096	579140	579184
7	579228	579272	579316	579360	579404	579448
8	579492	579536	579580	579624	579668	579712
9	579756	579800	579844	579888	579932	579976
10	580020	580064	580108	580152	580196	580240
11	580284	580328	580372	580416	580460	580504
12	580548	580592	580636	580680	580724	580768
13	580812	580856	580900	580944	580988	581032
14	581076	581120	581164	581208	581252	581296
15	581340	581384	581428	581472	581516	581560
16	581604	581648	581693	581737	581781	581825
17	581869	581913	581957	582001	582045	582089
18	582133	582177	582221	582265	582309	582353
19	582397	582441	582485	582529	582573	582617
20	582662	582706	582750	582794	582838	582882
21	582926	582970	583014	583058	583102	583146
22	583190	583234	583278	583322	583366	583411
23	583455	583499	583543	583587	583631	583675
24	583719	583763	583807	583851	583896	583940
25	583984	584028	584072	584116	584160	584204
26	584248	584292	584336	584381	584425	584469
27	584513	584557	584601	584645	584689	584733
28	584777	584821	584866	584910	584954	584998
29	585042	585086	585130	585174	585218	585262
30	585307	585351	585395	585439	585483	585527
31	585571	585615	585659	585703	585748	585792
32	585836	585880	585924	585968	586013	586057
33	586101	586145	586189	586233	586278	586322
34	586366	586410	586454	586498	586542	586586
35	586631	586675	586719	586763	586807	586851
36	586896	586940	586984	587028	587072	587116
37	587160	587205	587249	587293	587337	587381
38	587425	587470	587514	587558	587602	587646
39	587690	587735	587779	587823	587867	587911
40	587955	588000	588044	588088	588132	588176
41	588221	588265	588309	588353	588397	588441
42	588486	588530	588574	588618	588662	588707
43	588751	588795	588839	588883	588927	588971
44	589016	589060	589104	589149	589193	589237
45	589281	589325	589370	589414	589458	589502
46	589546	589591	589635	589679	589723	589767
47	589812	589856	589900	589944	589989	590033
48	590077	590121	590165	590210	590254	590298
49	590342	590387	590431	590475	590519	590563
50	590608	590652	590696	590740	590785	590829
51	590873	590917	590962	591006	591050	591094
52	591139	591183	591227	591271	591316	591360
53	591404	591449	591493	591537	591581	591625
54	591670	591714	591758	591802	591847	591891
55	591935	591979	592024	592068	592112	592156
56	592201	592245	592289	592333	592378	592422
57	592466	592511	592555	592599	592643	592688
58	592732	592776	592821	592865	592909	592953
59	592998	593042	593086	593130	593175	593219
60	593260	593304	593348	593392	593436	593480
1	593524	593568	593612	593656	593700	593744
2	593788	593832	593876	593920	593964	594008
3	594052	594096	594140	594184	594228	594272
4	594316	594360	594404	594448	594492	594536
5	594580	594624	594668	594712	594756	594800
6	594844	594888	594932	594976	595020	595064
7	595108	595152	595196	595240	595284	595328
8	595372	595416	595460	595504	595548	595592
9	595636	595680	595724	595768	595812	595856
10	595900	595944	595988	596032	596076	596120
11	596164	596208	596252	596296	596340	596384
12	596428	596472	596516	596560	596604	596648
13	596692	596736	596780	596824	596868	596912
14	596956	596999	597043	597087	597131	597175
15	597219	597263	597307	597351	597395	597439
16	597483	597527	597571	597615	597659	597703
17	597747	597791	597835	597879	597923	597967
18	598011	598055	598099	598143	598187	598231
19	598275	598319	598363	598407	598451	598495
20	598539	598583	598627	598671	598715	598759
21	598803	598847	598891	598935	598979	599023
22	599067	599111	599155	599199	599243	599287
23	599331	599375	599419	599463	599507	599551
24	599595	599639	599683	599727	599771	599815
25	599859	599903	599947	599991	600035	600079
26	600123	600167	600211	600255	600299	600343
27	600380					

NATURAL VERSED SINES.

Natural Versed Sine of 66 degrees, or Co-versed Sine of 156 degrees.									
Minutes	0"	10"	20"	30"	40"	50"	Minutes		
0	593263	593308	593352	593396	593441	593485	59		
1	593529	593573	593618	593662	593706	593751	58		
2	593795	593839	593884	593928	593972	594016	57		
3	594061	594105	594149	594194	594238	594282	56		
4	594327	594371	594415	594460	594504	594548	55		
5	594592	594637	594681	594725	594770	594814	54		
6	594858	594903	594947	594991	595036	595080	53		
7	595124	595169	595213	595257	595302	595346	52		
8	595390	595435	595479	595523	595568	595612	51		
9	595656	595701	595745	595789	595834	595878	50		
10	595922	595967	596011	596056	596100	596144	49		
11	596189	596233	596277	596322	596366	596410	48		
12	596455	596499	596543	596588	596632	596677	47		
13	596721	596765	596810	596854	596898	596943	46		
14	596987	597031	597076	597121	597165	597209	45		
15	597253	597298	597342	597386	597431	597475	44		
16	597520	597564	597608	597653	597697	597741	43		
17	597786	597830	597875	597919	597963	598008	42		
18	598052	598097	598141	598185	598230	598274	41		
19	598319	598363	598407	598452	598496	598541	40		
20	598585	598629	598674	598718	598763	598807	39		
21	598851	598896	598940	598985	599029	599074	38		
22	599118	599162	599207	599251	599296	599340	37		
23	599384	599429	599473	599518	599562	599607	36		
24	599651	599695	599740	599784	599829	599873	35		
25	599918	599962	600006	600051	600095	600140	34		
26	600184	600229	600273	600317	600362	600406	33		
27	600451	600495	600540	600584	600629	600673	32		
28	600717	600762	600806	600851	600895	600940	31		
29	600984	601029	601073	601118	601162	601206	30		
30	601251	601295	601340	601384	601429	601473	29		
31	601518	601562	601607	601651	601696	601740	28		
32	601785	601829	601873	601918	601962	602007	27		
33	602051	602096	602140	602185	602229	602274	26		
34	602318	602363	602407	602452	602496	602541	25		
35	602585	602630	602674	602719	602763	602808	24		
36	602825	602870	602914	602959	603003	603047	23		
37	603110	603154	603200	603243	603287	603332	22		
38	603386	603431	603475	603520	603564	603609	21		
39	603653	603698	603742	603787	603831	603876	20		
40	603920	603965	604009	604054	604098	604143	19		
41	604187	604232	604276	604321	604365	604410	18		
42	604454	604499	604544	604588	604633	604677	17		
43	604722	604766	604811	604855	604900	604944	16		
44	604989	605033	605078	605123	605167	605212	15		
45	605256	605301	605345	605390	605434	605479	14		
46	605523	605568	605613	605657	605702	605746	13		
47	605791	605835	605880	605924	605969	606014	12		
48	606058	606103	606147	606192	606236	606281	11		
49	606325	606370	606415	606459	606504	606548	10		
50	606593	606637	606682	606727	606771	606816	9		
51	606860	606905	606949	606994	607039	607083	8		
52	607128	607172	607217	607262	607306	607351	7		
53	607395	607440	607485	607529	607574	607618	6		
54	607663	607707	607752	607797	607841	607886	5		
55	607930	607975	608020	608064	608109	608153	4		
56	608198	608243	608287	608332	608377	608421	3		
57	608466	608510	608555	608600	608644	608689	2		
58	608733	608777	608822	608867	608912	608957	1		
59	609001	609046	609090	609135	609180	609224	0		
	60"	50"	40"	30"	20"	10"			
Co-versed Sine of 23 degrees, or Versed Sine Supplement of 113 degrees.									
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	4	9	13	18	22	27	31	36	40

Natural Versed Sine of 67 degrees, or Co-versed Sine of 157 degrees.									
Minutes	0"	10"	20"	30"	40"	50"	Minutes		
0	609269	609313	609358	609403	609447	609492	59		
1	609537	609581	609626	609671	609715	609760	58		
2	609804	609849	609894	609938	609983	610028	57		
3	610072	610117	610162	610206	610251	610296	56		
4	610340	610385	610429	610474	610519	610563	55		
5	610608	610653	610697	610742	610787	610831	54		
6	610876	610921	610965	611010	611055	611099	53		
7	611144	611189	611233	611278	611323	611367	52		
8	611412	611457	611501	611546	611591	611635	51		
9	611680	611725	611769	611814	611859	611903	50		
10	611948	611993	612038	612082	612127	612172	49		
11	612216	612261	612306	612350	612395	612440	48		
12	612484	612529	612574	612618	612663	612708	47		
13	612752	612797	612842	612887	612932	612976	46		
14	613020	613066	613110	613155	613200	613245	45		
15	613288	613334	613378	613423	613468	613513	44		
16	613557	613602	613647	613691	613736	613781	43		
17	613826	613870	613915	613960	614005	614049	42		
18	614094	614139	614183	614228	614273	614318	41		
19	614362	614407	614452	614496	614541	614586	40		
20	614631	614675	614720	614765	614810	614854	39		
21	614899	614944	614989	615033	615078	615123	38		
22	615168	615212	615257	615302	615347	615391	37		
23	615436	615481	615526	615570	615615	615660	36		
24	615705	615749	615794	615839	615884	615928	35		
25	615973	616018	616063	616108	616152	616197	34		
26	616242	616287	616332	616376	616421	616466	33		
27	616510	616555	616600	616645	616690	616734	32		
28	616779	616824	616869	616913	616958	617003	31		
29	617048	617093	617137	617182	617227	617272	30		
30	617317	617361	617406	617451	617496	617541	29		
31	617585	617630	617675	617720	617765	617809	28		
32	617854	617899	617944	617989	618033	618078	27		
33	618123	618168	618213	618257	618302	618347	26		
34	618392	618437	618481	618526	618571	618616	25		
35	618661	618706	618750	618795	618840	618885	24		
36	618930	618974	619019	619064	619109	619154	23		
37	619199	619243	619288	619333	619378	619423	22		
38	619468	619512	619557	619602	619647	619692	21		
39	619737	619781	619826	619871	619916	619961	20		
40	620006	620050	620095	620140	620185	620230	19		
41	620275	620320	620364	620409	620454	620499	18		
42	620544	620589	620634	620678	620723	620768	17		
43	620813	620858	620903	620948	620992	621037	16		
44	621082	621127	621172	621217	621262	621307	15		
45	621351	621396	621441	621486	621531	621576	14		
46	621621	621666	621710	621755	621800	621845	13		
47	621890	621935	621980	622025	622069	622114	12		
48	622159	622204	622249	622293	622338	622383	11		
49	622429	622473	622518	622563	622608	622653	10		
50	622698	622743	622788	622833	622878	622923	9		
51	622967	623012	623057	623102	623147	623192	8		
52	623237	623282	623327	623371	623416	623461	7		
53	623506	623551	623596	623641	623686	623731	6		
54	623776	623821	623866	623910	623955	624000	5		
55	624045	624090	624135	624180	624225	624270	4		
56	624315	624360	624405	624450	624495	624540	3		
57	624584	624629	624674	624719	624764	624809	2		
58	624854	624899	624944	624989	625034	625079	1		
59	625124	625169	625214	625259	625304	625348	0		
	60"	50"	40"	30"	20"	10"			
Co-versed Sine of 22 degrees, or Versed Sine Supplement of 112 degrees									
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	4	9	13	18	22	27	31	36	40

NATURAL VERSED SINES.

Natural Versed Sine of 68 degrees, or Co-versed Sine of 158 degrees.							
Minutes	0'	10'	20'	30'	40'	50'	Minutes
0	625393	625438	625483	625528	625573	625618	59
1	625663	625708	625753	625798	625843	625888	58
2	625933	625978	626023	626068	626113	626158	57
3	626203	626248	626293	626338	626383	626428	56
4	626472	626517	626562	626607	626652	626697	55
5	626742	626787	626832	626877	626922	626967	54
6	627012	627057	627102	627147	627192	627237	53
7	627282	627327	627372	627417	627462	627507	52
8	627552	627597	627642	627687	627732	627777	51
9	627822	627867	627912	627957	628002	628047	50
10	628092	628137	628182	628227	628272	628317	49
11	628362	628407	628452	628497	628542	628587	48
12	628632	628677	628722	628767	628812	628857	47
13	628902	628947	628992	629037	629082	629127	46
14	629172	629217	629262	629307	629353	629398	45
15	629443	629488	629533	629578	629623	629668	44
16	629713	629758	629803	629848	629893	629938	43
17	629983	630028	630073	630118	630163	630208	42
18	630258	630303	630348	630393	630438	630483	41
19	630534	630579	630624	630669	630714	630759	40
20	630794	630839	630884	630929	630974	631019	39
21	631064	631109	631154	631199	631244	631289	38
22	631335	631380	631425	631470	631515	631560	37
23	631605	631650	631695	631740	631785	631830	36
24	631875	631921	631966	632011	632056	632101	35
25	632146	632191	632236	632281	632326	632371	34
26	632416	632462	632507	632552	632597	632642	33
27	632687	632732	632777	632822	632867	632912	32
28	632958	633003	633048	633093	633138	633183	31
29	633228	633273	633318	633363	633409	633454	30
30	633499	633544	633589	633634	633679	633724	29
31	633769	633815	633860	633905	633950	633995	28
32	634040	634085	634130	634175	634221	634266	27
33	634311	634356	634401	634446	634491	634536	26
34	634582	634627	634672	634717	634762	634807	25
35	634852	634898	634943	634988	635033	635078	24
36	635123	635168	635213	635259	635304	635349	23
37	635594	635639	635684	635729	635775	635820	22
38	635865	635910	635955	636000	636046	636091	21
39	635936	635981	636026	636071	636116	636162	20
40	636207	636252	636297	636342	636387	636433	19
41	636478	636523	636568	636613	636658	636704	18
42	636749	636794	636839	636884	636929	636975	17
43	637020	637065	637110	637155	637201	637246	16
44	637291	637336	637381	637426	637472	637517	15
45	637562	637607	637652	637698	637743	637788	14
46	637833	637878	637923	637969	638014	638059	13
47	638104	638149	638195	638240	638285	638330	12
48	638375	638421	638466	638511	638556	638601	11
49	638647	638692	638737	638782	638827	638873	10
50	638918	638963	639008	639054	639099	639144	9
51	639189	639234	639280	639325	639370	639415	8
52	639460	639506	639551	639596	639641	639687	7
53	639732	639777	639822	639868	639913	639958	6
54	640003	640048	640094	640139	640184	640229	5
55	640275	640320	640365	640410	640456	640501	4
56	640546	640591	640637	640682	640727	640772	3
57	640817	640863	640908	640953	640998	641044	2
58	641089	641134	641179	641225	641270	641315	1
59	641360	641406	641451	641496	641542	641587	0
60' 50' 40' 30' 20' 10'							
Co-versed Sine of 21 degrees, or Versed Sine Supplement of 111 degrees.							
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9" parts. } 5 9 14 18 23 27 32 36 41							

Natural Versed Sine of 69 degrees, or Co-versed Sine of 159 degrees.							
Minutes	0'	10'	20'	30'	40'	50'	Minutes
0	641632	641677	641723	641768	641813	641858	59
1	641904	641949	641994	642039	642085	642130	58
2	642175	642221	642266	642311	642356	642402	57
3	642447	642493	642537	642583	642628	642673	56
4	642719	642764	642809	642854	642900	642945	55
5	642990	643036	643081	643126	643171	643217	54
6	643262	643307	643353	643398	643443	643488	53
7	643534	643579	643624	643670	643715	643760	52
8	643806	643851	643896	643941	643987	644032	51
9	644077	644123	644168	644213	644259	644304	50
10	644349	644395	644440	644485	644530	644576	49
11	644621	644666	644712	644757	644802	644848	48
12	644893	644938	644984	645029	645074	645120	47
13	645165	645210	645256	645301	645346	645392	46
14	645437	645482	645528	645573	645618	645664	45
15	645709	645754	645800	645845	645890	645936	44
16	645981	646026	646072	646117	646162	646208	43
17	646253	646298	646344	646389	646434	646480	42
18	646525	646570	646616	646661	646707	646752	41
19	646797	646843	646888	646933	646979	647024	40
20	647069	647115	647160	647206	647251	647296	39
21	647342	647387	647433	647478	647523	647569	38
22	647614	647659	647705	647750	647795	647841	37
23	647886	647931	647977	648022	648068	648113	36
24	648159	648204	648249	648294	648340	648385	35
25	648431	648476	648522	648567	648612	648658	34
26	648703	648748	648794	648839	648885	648930	33
27	648975	649021	649066	649112	649157	649202	32
28	649248	649293	649339	649384	649429	649475	31
29	649520	649565	649611	649656	649702	649747	30
30	649793	649838	649883	649929	649974	650020	29
31	650065	650111	650156	650201	650247	650292	28
32	650338	650383	650428	650474	650519	650565	27
33	650610	650656	650701	650746	650792	650837	26
34	650883	650929	650974	651019	651064	651110	25
35	651155	651201	651246	651292	651337	651383	24
36	651428	651473	651519	651564	651610	651655	23
37	651701	651746	651792	651837	651882	651928	22
38	651973	652019	652064	652110	652155	652201	21
39	652246	652292	652337	652382	652428	652473	20
40	652519	652564	652610	652655	652701	652746	19
41	652792	652837	652882	652928	652973	653019	18
42	653064	653110	653155	653201	653246	653292	17
43	653337	653383	653428	653474	653519	653565	16
44	653610	653656	653701	653746	653792	653837	15
45	653883	653928	653974	654019	654065	654110	14
46	654156	654201	654247	654292	654338	654383	13
47	654429	654474	654520	654565	654610	654656	12
48	654702	654747	654793	654838	654884	654929	11
49	654975	655020	655066	655111	655157	655202	10
50	655248	655293	655339	655384	655430	655475	9
51	655521	655566	655612	655657	655703	655749	8
52	655794	655840	655885	655931	655976	656022	7
53	656067	656113	656158	656204	656249	656295	6
54	656340	656386	656431	656477	656522	656568	5
55	656613	656659	656705	656750	656796	656841	4
56	656887	656933	656978	657023	657069	657114	3
57	657160	657205	657251	657297	657343	657388	2
58	657433	657479	657524	657570	657615	657661	1
59	657707	657752	657798	657843	657889	657934	0
60' 50' 40' 30' 20' 10'							
Co-versed Sine of 20 degrees, or Versed Sine Supplement of 110 degrees.							
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9" parts. } 5 9 14 18 23 27 32 36 41							

NATURAL VERSED SINES.

Natural Versed Sine of 70° degrees, or Co-versed Sine of 160 degrees.											
Minutes	0"	10"	20"	30"	40"	50"	Minutes	Minutes	Minutes		
0	657980	658025	658071	658117	658162	658208	59	0	674432		
1	658253	658299	658344	658390	658435	658481	58	1	674707		
2	658527	658572	658618	658663	658709	658754	57	2	674982		
3	658800	658846	658891	658937	658982	659028	56	3	675257		
4	659073	659119	659165	659210	659256	659301	55	4	675532		
5	659347	659393	659438	659484	659529	659575	54	5	675807		
6	659620	659666	659712	659757	659803	659848	53	6	676083		
7	659894	659940	659985	660031	660076	660122	52	7	676358		
8	660168	660213	660259	660304	660350	660396	51	8	676633		
9	660441	660487	660532	660578	660624	660669	50	9	676908		
10	660715	660760	660806	660852	660897	660943	49	10	677184		
11	660988	661034	661080	661125	661171	661216	48	11	677459		
12	661262	661308	661353	661399	661445	661490	47	12	677734		
13	661536	661581	661627	661673	661718	661764	46	13	678010		
14	661810	661855	661901	661946	661992	662038	45	14	678285		
15	662083	662129	662175	662220	662266	662311	44	15	678561		
16	662357	662403	662448	662494	662540	662585	43	16	678836		
17	662631	662677	662722	662768	662813	662859	42	17	679112		
18	662905	662950	662996	663042	663087	663133	41	18	679387		
19	663179	663224	663270	663316	663361	663407	40	19	679663		
20	663453	663498	663544	663589	663635	663681	39	20	679938		
21	663726	663772	663818	663863	663909	663955	38	21	680214		
22	664000	664046	664092	664137	664183	664229	37	22	680489		
23	664274	664320	664366	664411	664457	664503	36	23	680765		
24	664548	664594	664640	664685	664731	664777	35	24	681041		
25	664822	664868	664914	664960	665005	665051	34	25	681316		
26	665097	665142	665188	665234	665279	665325	33	26	681592		
27	665371	665416	665462	665508	665553	665599	32	27	681868		
28	665645	665690	665736	665782	665828	665873	31	28	682144		
29	665919	665965	666010	666056	666102	666147	30	29	682420		
30	666193	666239	666285	666330	666376	666422	29	30	682695		
31	666467	666513	666559	666604	666650	666696	28	31	682971		
32	666742	666787	666833	666879	666924	666970	27	32	683247		
33	667016	667062	667107	667153	667199	667244	26	33	683523		
34	667290	667336	667382	667427	667473	667519	25	34	683799		
35	667565	667610	667656	667702	667747	667793	24	35	684075		
36	667839	667885	667930	667976	668022	668068	23	36	684351		
37	668113	668159	668205	668250	668296	668342	22	37	684627		
38	668388	668433	668479	668525	668571	668616	21	38	684903		
39	668662	668708	668754	668799	668845	668891	20	39	685179		
40	668937	668982	669028	669074	669120	669165	19	40	685455		
41	669211	669257	669303	669348	669394	669440	18	41	685731		
42	669486	669531	669577	669623	669669	669714	17	42	686007		
43	669760	669806	669852	669897	669943	669989	16	43	686283		
44	670035	670081	670126	670172	670218	670264	15	44	686559		
45	670309	670355	670401	670447	670492	670538	14	45	686835		
46	670584	670630	670676	670721	670767	670813	13	46	687111		
47	670859	670904	670950	670996	671042	671088	12	47	687387		
48	671133	671179	671225	671271	671317	671362	11	48	687663		
49	671408	671454	671500	671545	671591	671637	10	49	687939		
50	671683	671729	671774	671820	671866	671912	9	50	688215		
51	671958	672003	672049	672095	672141	672187	8	51	688491		
52	672232	672278	672324	672370	672416	672461	7	52	688767		
53	672507	672553	672599	672645	672690	672736	6	53	689043		
54	672782	672828	672874	672920	672965	673011	5	54	689319		
55	673057	673103	673149	673194	673240	673286	4	55	689595		
56	673332	673378	673423	673469	673515	673561	3	56	689871		
57	673607	673653	673698	673744	673790	673836	2	57	690147		
58	673882	673928	673973	674019	674065	674111	1	58	690423		
59	674157	674203	674248	674294	674340	674386	0	59	690699		
60" 50" 40" 30" 20" 10"							60" 50" 40" 30" 20" 10"				
Co-versed Sine of 19 degrees, or Versed Sine Supplement of 109 degrees.											
Minutes	Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"	Minutes
	parts.	5	9	14	18	23	28	32	37	41	

Natural Versed Sine of 71° degrees, or Co-versed Sine of 161 degrees.									
Minutes	0"	10"	20"	30"	40"	50"	Minutes	Minutes	Minutes
0	674432	674478	674524	674569	674615	674661	59	0	674432
1	674707	674753	674799	674844	674890	674936	58	1	674707
2	674982	675028	675074	675120	675165	675211	57	2	674982
3	675257	675303	675349	675395	675441	675486	56	3	675257
4	675532	675578	675624	675670	675716	675762	55	4	675532
5	675807	675853	675899	675945	675991	676037	54	5	675807
6	676083	676128	676174	676220	676266	676312	53	6	676083
7	676358	676404	676450	676495	676541	676587	52	7	676358
8	676633	676679	676725	676771	676817	676863	51	8	676633
9	676908	676954	677000	677046	677092	677138	50	9	676908
10	677184	677230	677275	677321	677367	677413	49	10	677184
11	677459	677505	677551	677597	677643	677688	48	11	677459
12	677734	677780	677826	677872	677918	677964	47	12	677734
13	678010	678056	678101	678147	678193	678239	46	13	678010
14	678285	678331	678377	678423	678469	678515	45	14	678285
15	678561	678606	678652	678698	678744	678790	44	15	678561
16	678836	678882	678928	678974	679020	679066	43	16	678836
17	679112	679157	679203	679249	679295	679341	42	17	679112
18	679387	679433	679479	679525	679571	679617	41	18	679387
19	679663	679708	679754	679800	679846	679892	40	19	679663
20	679938	679984	680030	680076	680122	680168	39	20	679938
21	680214	680260	680306	680352	680397	680443	38	21	680214
22	680489	680535	680581	680627	680673	680719	37	22	680489
23	680765	680811	680857	680903	680949	680995	36	23	680765
24	681041	681087	681133	681179	681224	681270	35	24	681041
25	681316	681362	681408	681454	681500	681546	34	25	681316
26	681592	681638	681684	681730	681776	681822	33	26	681592
27	681868	681914	681960	682006	682052	682098	32	27	681868
28	682144	682190	682236	682282	682328	682374	31	28	682144
29	682420	682465	682511	682557	682603	682649	30	29	682420
30	682695	682741	682787	682833	682879	682925	29	30	682695
31	682971	683017	683063	683109	683155	683201	28	31	682971
32	683247	683293	683339	683385	683431	683477	27	32	683247
33	683523	683569	683615	683661	683707	683753	26	33	683523
34	683799	683845	683891	683937	683983	684029	25	34	683799
35	684075	684121	684167	684213	684259	684305	24	35	684075
36	684351	684397	684443	684489	684535	684581	23	36	684351
37	684627	684673	684719	684765	684811	684857	22	37	684627
38	684903	684949	684995	685041	685087	685133	21	38	684903
39	685179	685225	685271	685317	685363	685409	20	39	685179
40	685455	685501	685547	685593	685639	685685	19	40	685455
41	685731	685777	685823	685869	685915	685961	18	41	685731
42	686007	686053	686099	686145	686191	686237	17	42	686007
43	686283	686329	686375	686421	686467	686513	16	43	686283
44	686559	686605	686651	686697	686743	686789	15	44	686559
45	686835	686881	686927	686973	687019	687065	14	45	68

NATURAL VERSED SINES.

Natural Versed Sine of 72 degrees, or Co-versed Sine of 162 degrees.									
Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"
0	690983	691029	691075	691121	691167	691214	59	0	707628
1	691260	691306	691352	691398	691444	691490	58	1	707906
2	691536	691582	691629	691675	691721	691767	57	2	708185
3	691813	691859	691905	691951	691998	692044	56	3	708463
4	692090	692136	692182	692228	692274	692320	55	4	708741
5	692367	692413	692459	692505	692551	692597	54	5	709019
6	692643	692690	692736	692782	692828	692874	53	6	709298
7	692920	692966	693012	693059	693105	693151	52	7	709576
8	693197	693243	693289	693335	693382	693428	51	8	709855
9	693474	693520	693566	693612	693659	693705	50	9	710133
10	693751	693797	693843	693889	693935	693982	49	10	710411
11	694028	694074	694120	694166	694212	694259	48	11	710690
12	694305	694351	694397	694443	694489	694536	47	12	710968
13	694582	694628	694674	694720	694766	694813	46	13	711247
14	694859	694905	694951	694997	695043	695090	45	14	711525
15	695136	695182	695228	695274	695320	695367	44	15	711804
16	695413	695459	695505	695551	695597	695644	43	16	712082
17	695690	695736	695782	695828	695875	695921	42	17	712361
18	695967	696013	696059	696106	696152	696198	41	18	712639
19	696244	696290	696336	696383	696429	696475	40	19	712918
20	696521	696567	696614	696660	696706	696752	39	20	713197
21	696798	696844	696891	696937	696983	697029	38	21	713475
22	697076	697122	697168	697214	697260	697307	37	22	713754
23	697353	697399	697445	697491	697538	697584	36	23	714033
24	697630	697676	697723	697769	697815	697861	35	24	714312
25	697907	697954	698000	698046	698092	698138	34	25	714590
26	698185	698231	698277	698323	698370	698416	33	26	714869
27	698462	698508	698554	698601	698647	698693	32	27	715148
28	698739	698786	698832	698878	698924	698971	31	28	715427
29	699017	699063	699109	699155	699202	699248	30	29	715706
30	699294	699340	699387	699433	699479	699525	29	30	715985
31	699572	699618	699664	699710	699757	699803	28	31	716264
32	699849	699895	699942	699988	700034	700080	27	32	716543
33	700127	700173	700219	700265	700312	700358	26	33	716821
34	700404	700450	700497	700543	700589	700635	25	34	717100
35	700682	700728	700774	700820	700867	700913	24	35	717379
36	700959	701005	701052	701098	701144	701191	23	36	717659
37	701237	701283	701329	701376	701422	701468	22	37	717938
38	701514	701561	701607	701653	701700	701746	21	38	718217
39	701792	701838	701885	701931	701977	702023	20	39	718496
40	702070	702116	702162	702209	702255	702301	19	40	718775
41	702347	702394	702440	702486	702533	702579	18	41	719054
42	702625	702671	702718	702764	702810	702857	17	42	719333
43	702903	702949	702995	703042	703088	703134	16	43	719612
44	703181	703227	703273	703320	703366	703412	15	44	719892
45	703458	703505	703551	703597	703644	703690	14	45	720171
46	703736	703783	703829	703875	703921	703968	13	46	720450
47	704014	704060	704107	704153	704199	704246	12	47	720730
48	704292	704338	704385	704431	704477	704524	11	48	721009
49	704570	704616	704662	704709	704755	704801	10	49	721288
50	704848	704894	704940	704987	705033	705079	9	50	721568
51	705126	705172	705218	705265	705311	705357	8	51	721847
52	705404	705450	705496	705543	705589	705635	7	52	722126
53	705682	705728	705774	705821	705867	705913	6	53	722406
54	705960	706006	706052	706099	706145	706191	5	54	722685
55	706238	706284	706330	706377	706423	706469	4	55	722965
56	706516	706562	706608	706655	706701	706748	3	56	723244
57	706794	706840	706887	706933	706979	707026	2	57	723524
58	707072	707118	707165	707211	707257	707304	1	58	723803
59	707350	707396	707443	707489	707536	707582	0	59	724083
Minutes	60"	50"	40"	30"	20"	10"	Minutes	60"	50"
Co-versed Sine of 17 degrees, or Versed Sine Supplement of 107 degrees.									
Proper. } 1" 2" 3" 4" 5" 6" 7" 8" 9" parts. } 5 9 14 18 23 28 32 37 42									

Natural Versed Sine of 73 degrees, or Co-versed Sine of 163 degrees.									
Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"
0	707628	707675	707721	707767	707814	707860	59	0	707628
1	707906	707953	707999	708046	708092	708138	58	1	707906
2	708185	708231	708277	708324	708370	708417	57	2	708185
3	708463	708509	708556	708602	708648	708695	56	3	708463
4	708741	708788	708834	708880	708927	708973	55	4	708741
5	709019	709066	709112	709159	709205	709251	54	5	709019
6	709298	709344	709390	709437	709483	709530	53	6	709298
7	709576	709623	709669	709715	709762	709808	52	7	709576
8	709855	709901	709947	709994	710040	710086	51	8	709855
9	710133	710179	710226	710272	710318	710365	50	9	710133
10	710411	710458	710504	710551	710597	710643	49	10	710411
11	710690	710736	710783	710829	710875	710922	48	11	710690
12	710968	711015	711061	711107	711154	711200	47	12	710968
13	711247	711293	711340	711386	711432	711479	46	13	711247
14	711525	711572	711618	711664	711711	711757	45	14	711525
15	711804	711850	711897	711943	711989	712036	44	15	711804
16	712082	712129	712175	712222	712268	712314	43	16	712082
17	712361	712407	712454	712500	712547	712593	42	17	712361
18	712639	712686	712732	712778	712825	712872	41	18	712639
19	712918	712965	713011	713057	713104	713150	40	19	712918
20	713197	713243	713290	713336	713383	713429	39	20	713197
21	713475	713522	713568	713615	713661	713708	38	21	713475
22	713754	713801	713847	713894	713940	713986	37	22	713754
23	714033	714079	714126	714172	714219	714265	36	23	714033
24	714312	714358	714405	714451	714497	714544	35	24	714312
25	714590	714637	714683	714730	714776	714823	34	25	714590
26	714869	714916	714962	715009	715055	715102	33	26	714869
27	715148	715195	715241	715287	715334	715380	32	27	715148
28	715427	715473	715520	715566	715613	715659	31	28	715427
29	715706	715752	715799	715845	715892	715938	30	29	715706
30	715985	716031	716078	716124	716171	716217	29	30	715985
31	716264	716310	716357	716403	716450	716496	28	31	716264
32	716543	716589	716636	716682	716728	716775	27	32	716543
33	716821	716868	716914	716961	717007	717054	26	33	716821
34	717100	717147	717193	717240	717286	717333	25	34	717100
35	717379	717426	717473	717519	717566	717612	24	35	717379
36	717659	717705	717752	717798	717845	717891	23	36	717659
37	717938	717984	718031	718077	718124	718170	22	37	717938
38	718217	718263	718310	718356	718403	718449	21	38	718217
39	718496	718542	718589	718635	718682	718728	20	39	718496
40	718775	718821	718868	718915	718961	719008	19	40	718775
41	719054	719101	719147	719194	719240	719287	18	41	719054
42	719333	719380	719426	719473	719519	719566	17	42	719333
43	719612	719659	719706	719752	719799	719845	16	43	719612
44	719892	719938	719985	720031	720078	720124	15	44	719892
45	720171	720218	720264	720311	720357	720404	14	45	720171
46	720450	720497	720543	7205					

NATURAL VERSED SINES.

Minutes		Natural Versed Sine of 74 degrees, or Co-versed Sine of 164 degrees.						Minutes	
		0'	10'	20'	30'	40'	50'		
0	724363	724409	724456	724502	724549	724596	50		
1	724642	724689	724735	724782	724829	724875	58		
2	724922	724969	725015	725062	725108	725155	57		
3	725202	725248	725295	725341	725388	725435	56		
4	725481	725528	725575	725621	725668	725714	55		
5	725761	725808	725854	725901	725948	725994	54		
6	726041	726087	726134	726181	726227	726274	53		
7	726321	726367	726414	726460	726507	726554	52		
8	726600	726647	726694	726740	726787	726834	51		
9	726880	726927	726973	727020	727067	727113	50		
10	727160	727207	727253	727300	727347	727393	49		
11	727440	727487	727533	727580	727626	727673	48		
12	727720	727766	727813	727860	727906	727953	47		
13	728000	728046	728093	728140	728186	728233	46		
14	728280	728326	728373	728420	728466	728513	45		
15	728560	728606	728653	728700	728746	728793	44		
16	728840	728886	728933	728980	729026	729073	43		
17	729120	729166	729213	729260	729306	729353	42		
18	729400	729446	729493	729540	729586	729633	41		
19	729680	729726	729773	729820	729866	729913	40		
20	729960	730006	730053	730100	730146	730193	39		
21	730240	730286	730333	730380	730427	730473	38		
22	730520	730567	730613	730660	730707	730753	37		
23	730800	730847	730893	730940	730987	731033	36		
24	731080	731127	731174	731220	731267	731314	35		
25	731360	731407	731454	731500	731547	731594	34		
26	731641	731687	731734	731781	731827	731874	33		
27	731921	731968	732014	732061	732108	732154	32		
28	732201	732248	732294	732341	732388	732435	31		
29	732481	732528	732575	732621	732668	732715	30		
30	732762	732808	732855	732902	732949	732995	29		
31	733042	733089	733135	733182	733229	733276	28		
32	733322	733369	733416	733462	733509	733556	27		
33	733633	733679	733726	733773	733819	733866	26		
34	733883	733930	733977	734023	734070	734117	25		
35	734163	734210	734257	734304	734350	734397	24		
36	734444	734491	734537	734584	734631	734678	23		
37	734724	734771	734818	734865	734911	734958	22		
38	735005	735052	735098	735145	735192	735239	21		
39	735285	735332	735379	735426	735472	735519	20		
40	735566	735613	735659	735706	735753	735800	19		
41	735846	735893	735940	735987	736033	736080	18		
42	736127	736174	736220	736267	736314	736361	17		
43	736408	736454	736501	736548	736595	736641	16		
44	736688	736735	736782	736828	736875	736922	15		
45	736969	737016	737062	737109	737156	737203	14		
46	737249	737296	737343	737390	737437	737483	13		
47	737530	737577	737624	737670	737717	737764	12		
48	737811	737858	737904	737951	737998	738045	11		
49	738092	738138	738185	738232	738279	738325	10		
50	738372	738419	738466	738513	738559	738606	9		
51	738653	738700	738747	738793	738840	738887	8		
52	738934	738981	739027	739074	739121	739168	7		
53	739215	739261	739308	739355	739402	739449	6		
54	739495	739542	739589	739636	739683	739730	5		
55	739776	739823	739870	739917	739964	740010	4		
56	740057	740104	740151	740198	740244	740291	3		
57	740338	740385	740432	740479	740525	740572	2		
58	740619	740666	740713	740760	740806	740853	1		
59	740900	740947	740994	741040	741087	741134	0		
		60'	50'	40'	30'	20'	10'		
Minutes		Co-versed Sine of 15 degrees, or Versed Sine Supplement of 105 degrees.						Minutes	
		0'	10'	20'	30'	40'	50'		
0	741181	741228	741275	741321	741368	741415	59		
1	741462	741509	741556	741602	741649	741696	58		
2	741743	741790	741837	741883	741930	741977	57		
3	742024	742071	742118	742165	742211	742258	56		
4	742305	742352	742399	742446	742492	742539	55		
5	742586	742633	742680	742727	742774	742820	54		
6	742867	742914	742961	743008	743055	743101	53		
7	743148	743195	743242	743289	743336	743383	52		
8	743429	743476	743523	743570	743617	743664	51		
9	743711	743757	743804	743851	743898	743945	50		
10	743992	744039	744086	744132	744179	744226	49		
11	744273	744320	744367	744414	744460	744507	48		
12	744554	744601	744648	744695	744742	744789	47		
13	744835	744882	744929	744976	745023	745070	46		
14	745117	745164	745211	745257	745304	745351	45		
15	745398	745445	745492	745539	745586	745633	44		
16	745679	745726	745773	745820	745867	745914	43		
17	745961	746008	746054	746101	746148	746195	42		
18	746242	746289	746336	746383	746430	746477	41		
19	746523	746570	746617	746664	746711	746758	40		
20	746805	746852	746899	746946	746992	747039	39		
21	747086	747133	747180	747227	747274	747321	38		
22	747368	747414	747461	747508	747555	747602	37		
23	747649	747696	747743	747790	747837	747884	36		
24	747931	747978	748024	748071	748118	748165	35		
25	748212	748259	748306	748353	748400	748447	34		
26	748494	748541	748588	748634	748681	748728	33		
27	748775	748822	748869	748916	748963	749010	32		
28	749057	749104	749151	749198	749245	749291	31		
29	749338	749385	749432	749479	749526	749573	30		
30	749620	749667	749714	749761	749808	749855	29		
31	749902	749949	749996	750042	750089	750136	28		
32	750183	750230	750277	750324	750371	750418	27		
33	750466	750512	750559	750606	750653	750700	26		
34	750747	750794	750841	750888	750934	750981	25		
35	751028	751075	751122	751169	751216	751263	24		
36	751310	751357	751404	751451	751498	751545	23		
37	751592	751639	751686	751733	751780	751827	22		
38	751874	751921	751968	752015	752062	752108	21		
39	752155	752202	752249	752296	752343	752390	20		
40	752437	752484	752531	752578	752625	752672	19		
41	752719	752766	752813	752860	752907	752954	18		
42	753001	753048	753095	753142	753189	753236	17		
43	753283	753330	753377	753424	753471	753518	16		
44	753565	753612	753659	753706	753753	753800	15		
45	753847	753894	753941	753988	754035	754082	14		
46	754129	754176	754223	754270	754317	754364	13		
47	754411	754458	754505	754552	754599	754646	12		
48	754693	754740	754787	754834	754881	754928	11		
49	754975	755022	755069	755116	755163	755210	10		
50	755257	755304	755351	755398	755445	755492	9		
51	755539	755586	755633	755680	755727	755774	8		
52	755821	755868	755915	755962	756009	756056	7		
53	756103	756150	756197	756244	756291	756338	6		
54	756385	756432	756479	756526	756573	756620	5		
55	756667	756714	756761	756808	756855	756902	4		
56	756949	756996	757043	757090	757137	757184	3		
57	757231	757278	757326	757373	757420	757467	2		
58	757514	757561	757608	757655	757702	757749	1		
59	757796	757843	757890	757937	757984	758031	0		
		60'	50'	40'	30'	20'	10'		
Minutes		Co-versed Sine of 14 degrees, or Versed Sine Supplement of 104 degrees.						Minutes	
		0'	10'	20'	30'	40'	50'		
0	741181	741228	741275	741321	741368	741415	59		
1	741462	741509	741556	741602	741649	741696	58		
2	741743	741790	741837	741883	741930	741977	57		
3	742024	7424							

NATURAL VERSED SINES.

Natural Versed Sine of 76 degrees, or Co-versed Sine of 166 degrees.													Natural Versed Sine of 77 degrees, or Co-versed Sine of 167 degrees.																		
Minutes	0'	10'	20'	30'	40'	50'	Minutes	Minutes	0'	10'	20'	30'	40'	50'	Minutes	Minutes	0'	10'	20'	30'	40'	50'	Minutes	Minutes	0'	10'	20'	30'	40'	50'	Minutes
0	758078	758125	758172	758219	758266	758313	59	0	775049	775096	775143	775191	775238	775285	59	0	775049	775096	775143	775191	775238	775285	59	0	775049	775096	775143	775191	775238	775285	59
1	758360	758407	758454	758501	758549	758596	58	1	775332	775380	775427	775474	775521	775568	58	1	775332	775380	775427	775474	775521	775568	58	1	775332	775380	775427	775474	775521	775568	58
2	758643	758690	758737	758784	758831	758878	57	2	775616	775663	775710	775758	775805	775852	57	2	775616	775663	775710	775758	775805	775852	57	2	775616	775663	775710	775758	775805	775852	57
3	758925	758972	759019	759066	759113	759160	56	3	775899	775947	775994	776041	776088	776136	56	3	775899	775947	775994	776041	776088	776136	56	3	775899	775947	775994	776041	776088	776136	56
4	759207	759254	759301	759348	759395	759443	55	4	776183	776230	776277	776325	776372	776419	55	4	776183	776230	776277	776325	776372	776419	55	4	776183	776230	776277	776325	776372	776419	55
5	759490	759537	759584	759631	759678	759725	54	5	776466	776514	776561	776608	776655	776703	54	5	776466	776514	776561	776608	776655	776703	54	5	776466	776514	776561	776608	776655	776703	54
6	759772	759819	759866	759913	759960	760007	53	6	776750	776797	776844	776892	776939	776986	53	6	776750	776797	776844	776892	776939	776986	53	6	776750	776797	776844	776892	776939	776986	53
7	760054	760101	760148	760196	760243	760290	52	7	777033	777081	777128	777175	777222	777270	52	7	777033	777081	777128	777175	777222	777270	52	7	777033	777081	777128	777175	777222	777270	52
8	760337	760384	760431	760478	760525	760572	51	8	777317	777364	777412	777459	777506	777553	51	8	777317	777364	777412	777459	777506	777553	51	8	777317	777364	777412	777459	777506	777553	51
9	760619	760666	760713	760760	760807	760855	50	9	777601	777648	777695	777742	777790	777837	50	9	777601	777648	777695	777742	777790	777837	50	9	777601	777648	777695	777742	777790	777837	50
10	760902	760949	760996	761043	761090	761137	49	10	777884	777931	777979	778026	778073	778121	49	10	777884	777931	777979	778026	778073	778121	49	10	777884	777931	777979	778026	778073	778121	49
11	761184	761231	761278	761325	761372	761419	48	11	778168	778215	778262	778310	778357	778404	48	11	778168	778215	778262	778310	778357	778404	48	11	778168	778215	778262	778310	778357	778404	48
12	761467	761514	761561	761608	761655	761702	47	12	778452	778499	778546	778593	778641	778688	47	12	778452	778499	778546	778593	778641	778688	47	12	778452	778499	778546	778593	778641	778688	47
13	761749	761796	761843	761890	761937	761984	46	13	778735	778782	778830	778877	778924	778972	46	13	778735	778782	778830	778877	778924	778972	46	13	778735	778782	778830	778877	778924	778972	46
14	762032	762079	762126	762173	762220	762267	45	14	779019	779066	779113	779161	779208	779255	45	14	779019	779066	779113	779161	779208	779255	45	14	779019	779066	779113	779161	779208	779255	45
15	762314	762361	762408	762455	762502	762550	44	15	779303	779350	779397	779444	779492	779539	44	15	779303	779350	779397	779444	779492	779539	44	15	779303	779350	779397	779444	779492	779539	44
16	762597	762644	762691	762738	762785	762832	43	16	779587	779634	779681	779728	779775	779823	43	16	779587	779634	779681	779728	779775	779823	43	16	779587	779634	779681	779728	779775	779823	43
17	762879	762926	762973	763021	763068	763115	42	17	779870	779917	779965	780012	780059	780107	42	17	779870	779917	779965	780012	780059	780107	42	17	779870	779917	779965	780012	780059	780107	42
18	763162	763209	763256	763303	763350	763397	41	18	780154	780201	780248	780296	780343	780390	41	18	780154	780201	780248	780296	780343	780390	41	18	780154	780201	780248	780296	780343	780390	41
19	763444	763492	763539	763586	763633	763680	40	19	780438	780485	780532	780579	780627	780674	40	19	780438	780485	780532	780579	780627	780674	40	19	780438	780485	780532	780579	780627	780674	40
20	763727	763774	763821	763868	763916	763963	39	20	780721	780769	780816	780863	780911	780958	39	20	780721	780769	780816	780863	780911	780958	39	20	780721	780769	780816	780863	780911	780958	39
21	764010	764057	764104	764151	764198	764245	38	21	781005	781052	781100	781147	781194	781242	38	21	781005	781052	781100	781147	781194	781242	38	21	781005	781052	781100	781147	781194	781242	38
22	764292	764340	764387	764434	764481	764528	37	22	781289	781336	781384	781431	781478	781526	37	22	781289	781336	781384	781431	781478	781526	37	22	781289	781336	781384	781431	781478	781526	37
23	764575	764622	764669	764717	764764	764811	36	23	781573	781620	781668	781715	781762	781809	36	23	781573	781620	781668	781715	781762	781809	36	23	781573	781620	781668	781715	781762	781809	36
24	764858	764905	764952	765000	765046	765094	35	24	781857	781904	781951	781999	782046	782093	35	24	781857	781904	781951	781999	782046	782093	35	24	781857	781904	781951	781999	782046	782093	35
25	765141	765188	765235	765282	765329	765376	34	25	782141	782188	782235	782283	782330	782377	34	25	782141	782188	782235	782283	782330	782377	34	25	782141	782188	782235	782283	782330	782377	34
26	765423	765471	765518	765565	765612	765659	33	26	782425	782472	782519	782567	782614	782661	33	26	782425	782472	782519	782567	782614	782661	33	26	782425	782472	782519	782567	782614	782661	33
27	765706	765753	765800	765848	765895	765942	32	27	782708	782756	782803	782850	782898	782945	32	27	782708	782756	782803	782850	782898	782945	32	27	782708	782756	782803	782850	782898	782945	32
28	765989	766036	766083	766130	766178	766225	31	28	782992	783040	783087	783134	783182	783229	31	28	782992	783040	783087	783134	783182	783229	31	28	782992	783040	783087	783134	783182	783229	31
29	766272	766319	766366	766413	766460	766507	30	29	783276	783324	783371	783418	783466	783513	30	29	783276	783324	783371	783418	783466	783513	30	29	783276	783324	783371	783418	783466	783513	30
30	766555	766602	766649	766696	766743	766790	29	30	783560	783608	783655	783702	783749	783797	29	30	783560	783608	783655	783702	783749	783797	29	30	783560	783608	783655	783702	783749	783797	29
31	766837	766885	766932	766979	767026	767073	28	31	783844	783892	783939	783986	784034	784081	28	31	783844	783892	783939	783986	784034	784081	28	31	783844	783892	783939	783986	784034	784081	28
32	767120	767168	767215	767262	767309	767356	27	32	784128	784176	784223	784270	784318	784365	27	32	784128	784176	784223	784270	784318	784365	27	32	784128	784176	784223	784270	784318	784365	27
33	767403	767450	767498	767545	767592	767639	26	33	784412	784460	784507	784554	784602	784649	26																

NATURAL VERSED SINES.

Natural Versed Sine of 78 degrees, or Co-versed sine of 168 degrees.													Natural Versed Sine of 79 degrees, or Co-versed Sine of 169 degrees.												
Minutes	0°	10°	20°	30°	40°	50°	Minutes	Minutes	0°	10°	20°	30°	40°	50°	Minutes										
0	792088	792136	792183	792231	792278	792325	59	0	809191	809239	809286	809334	809381	809429	59										
1	792373	792420	792468	792515	792563	792610	58	1	809477	809524	809572	809619	809667	809715	58										
2	792657	792705	792752	792800	792847	792895	57	2	809762	809810	809857	809905	809953	810000	57										
3	792942	792990	793037	793084	793132	793179	56	3	810048	810095	810143	810191	810238	810286	56										
4	793227	793274	793321	793369	793416	793464	55	4	810333	810381	810429	810476	810524	810571	55										
5	793511	793559	793606	793653	793701	793748	54	5	810619	810667	810714	810762	810809	810857	54										
6	793796	793843	793891	793938	793986	794033	53	6	810905	810952	811000	811047	811095	811143	53										
7	794080	794128	794175	794223	794270	794318	52	7	811190	811238	811285	811333	811381	811428	52										
8	794365	794413	794460	794507	794555	794602	51	8	811476	811523	811571	811619	811666	811714	51										
9	794650	794697	794745	794792	794840	794887	50	9	811762	811809	811857	811904	811952	812000	50										
10	794935	794982	795029	795077	795124	795172	49	10	812047	812095	812142	812190	812238	812285	49										
11	795219	795267	795314	795362	795409	795456	48	11	812333	812381	812428	812476	812523	812571	48										
12	795504	795551	795599	795646	795694	795741	47	12	812619	812666	812714	812762	812809	812857	47										
13	795789	795836	795884	795931	795979	796026	46	13	812904	812952	813000	813047	813095	813143	46										
14	796073	796121	796168	796216	796263	796311	45	14	813190	813238	813285	813333	813381	813428	45										
15	796358	796406	796453	796501	796548	796596	44	15	813476	813524	813571	813619	813666	813714	44										
16	796643	796691	796738	796785	796833	796880	43	16	813762	813809	813857	813905	813952	814000	43										
17	796928	796975	797023	797070	797118	797165	42	17	814048	814095	814143	814190	814238	814286	42										
18	797213	797260	797308	797355	797403	797450	41	18	814333	814381	814429	814476	814524	814572	41										
19	797498	797545	797593	797640	797687	797735	40	19	814619	814667	814715	814762	814810	814857	40										
20	797782	797830	797877	797925	797972	798020	39	20	814905	814953	815000	815048	815096	815143	39										
21	798067	798115	798162	798210	798257	798305	38	21	815191	815239	815286	815334	815382	815429	38										
22	798352	798400	798447	798495	798542	798590	37	22	815477	815524	815572	815620	815667	815715	37										
23	798637	798685	798732	798780	798827	798875	36	23	815763	815810	815858	815906	815953	816001	36										
24	798922	798970	799017	799065	799112	799160	35	24	816049	816096	816144	816192	816239	816287	35										
25	799207	799255	799302	799350	799397	799445	34	25	816335	816382	816430	816478	816525	816573	34										
26	799492	799540	799587	799634	799682	799730	33	26	816621	816668	816716	816764	816811	816859	33										
27	799777	799824	799872	799919	799967	800015	32	27	816906	816954	817002	817049	817097	817145	32										
28	800062	800110	800157	800205	800252	800300	31	28	817192	817240	817288	817335	817383	817431	31										
29	800347	800395	800442	800490	800537	800585	30	29	817478	817526	817574	817621	817669	817717	30										
30	800632	800680	800727	800775	800822	800870	29	30	817764	817812	817860	817907	817955	818003	29										
31	800917	800965	801012	801060	801107	801155	28	31	818050	818098	818146	818194	818242	818289	28										
32	801202	801250	801297	801345	801392	801440	27	32	818337	818384	818432	818480	818527	818575	27										
33	801487	801535	801582	801630	801677	801725	26	33	818623	818670	818718	818766	818813	818861	26										
34	801772	801820	801867	801915	801962	802010	25	34	818909	818956	819004	819052	819099	819147	25										
35	802058	802105	802153	802200	802248	802295	24	35	819195	819242	819290	819338	819385	819433	24										
36	802343	802390	802438	802485	802533	802580	23	36	819481	819529	819576	819624	819672	819719	23										
37	802628	802675	802723	802770	802818	802865	22	37	819767	819815	819862	819910	819958	820005	22										
38	802913	802961	803008	803056	803103	803151	21	38	820053	820101	820148	820196	820244	820292	21										
39	803198	803246	803293	803341	803388	803436	20	39	820339	820387	820435	820483	820530	820578	20										
40	803483	803531	803578	803626	803674	803721	19	40	820625	820673	820721	820769	820816	820864	19										
41	803769	803816	803864	803911	803959	804006	18	41	820912	820959	821007	821055	821102	821150	18										
42	804054	804101	804149	804196	804244	804292	17	42	821198	821245	821293	821341	821389	821437	17										
43	804339	804387	804434	804482	804530	804577	16	43	821484	821532	821579	821627	821675	821723	16										
44	804624	804672	804719	804767	804815	804862	15	44	821770	821818	821866	821913	821961	822009	15										
45	804910	804957	805005	805052	805100	805147	14	45	822056	822104	822152	822200	822247	822295	14										
46	805195	805243	805290	805338	805385	805433	13	46	822343	822390	822438	822486	822534	822581	13										
47	805480	805528	805575	805623	805671	805718	12	47	822629	822677	822724	822772	822820	822868	12										
48	805766	805813	805861	805908	805956	806003	11	48	822915	822963	823011	823058	823106	823154	11										
49	806051	806099	806146	806194	806241	806289	10	49	823202	823249	823297	823345	823393	823440	10										
50	806336	806384	806432	806479	806527	806574	9	50	823488	823536	823583	823631	823679	823726	9										
51	806622	806669	806717	806764	806812	806860	8	51	823774	823822	823869	823917	823965	824013	8										
52	806907	806955	807002	807050	807097	807145	7	52	824061	824108	824156	824204	824252	824300	7										
53	807193	807240	807288	807335	807383	807430	6	53	824347	824395	824442	824490	824538	824586	6										
54	807478	807526	807573	807621	807668	807716	5	54	824633	824681	824729	824776	824824	824872	5										
55	807763	807811	807859	807906	807954	808001	4	55	824920	824967	825015	825063	825111	825158	4										
56	808049	808097	808144	808192	808239	808287	3	56	825206	825254	825302	825349	825397	825445	3										
57	808334	808382	808430	808477	808525	808572	2	57	825492	825540	825588	825636	825683	825731	2										
58	808620	808668	808715	808763	808810	808858	1	58	825779	825827	825874	825922	825970	826018	1										
59	808905	808953	809001	809048	809096	809143	0	59	826065	826113	826161	826209	826256	826304	0										
Minutes	60°	50°	40°	30°	20°	10°	Minutes	Minutes	60°	50°	40°	30°	20°	10°	Minutes										
Co-versed Sine of 11 degrees, or Versed Sine Supplement of 101 degrees.																									
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9" parts. } 5 9 14 19 24 28 33 38 43																									

NATURAL VERSED SINES.

Natural Versed Sine of 80 degrees, or Co-versed Sine of 170 degrees.									
Minutes	0"	10"	20"	30"	40"	50"			
0	826352	826400	826447	826495	826543	826591			
1	826638	826686	826734	826782	826830	826877			
2	826925	826973	827020	827068	827116	827164			
3	827211	827259	827307	827355	827402	827450			
4	827498	827546	827593	827641	827689	827737			
5	827784	827832	827880	827928	827975	828023			
6	828071	828119	828166	828214	828262	828310			
7	828357	828405	828453	828501	828549	828596			
8	828644	828692	828740	828787	828835	828883			
9	828931	828978	829026	829074	829122	829169			
10	829217	829265	829313	829361	829408	829456			
11	829504	829552	829599	829647	829695	829743			
12	829791	829838	829886	829934	829982	830030			
13	830077	830125	830173	830220	830268	830316			
14	830364	830412	830459	830507	830555	830603			
15	830650	830698	830746	830794	830842	830889			
16	830937	830985	831033	831081	831128	831176			
17	831224	831272	831320	831367	831415	831463			
18	831511	831558	831606	831654	831702	831750			
19	831797	831845	831893	831941	831989	832036			
20	832084	832132	832180	832227	832275	832323			
21	832371	832419	832466	832514	832562	832610			
22	832658	832705	832753	832801	832849	832897			
23	832944	832992	833040	833088	833136	833183			
24	833231	833279	833327	833375	833423	833470			
25	833518	833566	833614	833661	833709	833757			
26	833805	833853	833901	833948	833996	834044			
27	834092	834140	834187	834235	834283	834331			
28	834379	834426	834474	834522	834570	834618			
29	834666	834713	834761	834809	834857	834905			
30	834952	835000	835048	835096	835144	835191			
31	835239	835287	835335	835383	835431	835478			
32	835526	835574	835622	835670	835718	835765			
33	835813	835861	835909	835957	836004	836052			
34	836100	836148	836196	836244	836292	836339			
35	836387	836435	836483	836531	836578	836626			
36	836674	836722	836770	836818	836866	836913			
37	836961	837009	837057	837105	837153	837200			
38	837248	837296	837344	837392	837439	837487			
39	837535	837583	837631	837679	837726	837774			
40	837822	837870	837918	837966	838013	838061			
41	838109	838157	838205	838253	838300	838348			
42	838396	838444	838492	838540	838588	838635			
43	838683	838731	838779	838827	838875	838922			
44	838970	839018	839066	839114	839162	839210			
45	839257	839305	839353	839401	839449	839497			
46	839545	839592	839640	839688	839736	839784			
47	839832	839880	839927	839975	840023	840071			
48	840169	840217	840265	840313	840361	840409			
49	840466	840514	840562	840610	840658	840706			
50	840741	840789	840837	840885	840933	840981			
51	840989	841037	841085	841133	841181	841229			
52	841268	841315	841363	841411	841459	841507			
53	841555	841603	841650	841698	841746	841794			
54	841842	841890	841938	841986	842033	842081			
55	842129	842177	842225	842273	842321	842369			
56	842416	842464	842512	842560	842608	842656			
57	842704	842752	842800	842847	842895	842943			
58	842991	843039	843087	843135	843183	843230			
59	843278	843326	843374	843422	843470	843518			
	60"	50"	40"	30"	20"	10"			
Co-versed Sine of 9 degrees, or Versed Sine Supplement of 99 degrees.									
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	5	10	14	19	24	29	33	38	43

Natural Versed Sine of 81 degrees, or Co-versed Sine of 171 degrees.									
Minutes	0"	10"	20"	30"	40"	50"			
0	843566	843613	843661	843709	843757	843805			
1	843853	843901	843949	843997	844044	844092			
2	844140	844188	844236	844284	844332	844380			
3	844428	844475	844523	844571	844619	844667			
4	844715	844763	844811	844859	844906	844954			
5	845002	845050	845098	845146	845194	845242			
6	845290	845338	845385	845433	845481	845529			
7	845577	845625	845673	845721	845769	845817			
8	845864	845912	845960	846008	846056	846104			
9	846152	846200	846248	846296	846343	846391			
10	846439	846487	846535	846583	846631	846679			
11	846727	846775	846823	846870	846918	846966			
12	847014	847062	847110	847158	847206	847254			
13	847302	847350	847397	847445	847493	847541			
14	847589	847637	847685	847733	847781	847829			
15	847877	847925	847972	848020	848068	848116			
16	848164	848212	848260	848308	848356	848404			
17	848452	848500	848547	848595	848643	848691			
18	848739	848787	848835	848883	848931	848979			
19	849027	849075	849123	849171	849218	849266			
20	849314	849362	849410	849458	849506	849554			
21	849602	849650	849698	849746	849794	849842			
22	849889	849937	849985	850033	850081	850129			
23	850177	850225	850273	850321	850369	850417			
24	850465	850513	850561	850608	850656	850704			
25	850751	850800	850848	850896	850944	850992			
26	851040	851088	851136	851184	851232	851280			
27	851328	851376	851423	851471	851519	851567			
28	851615	851663	851711	851759	851807	851855			
29	851903	851951	851999	852047	852095	852143			
30	852191	852239	852286	852334	852382	852430			
31	852478	852526	852574	852622	852670	852718			
32	852766	852814	852862	852910	852958	853006			
33	853054	853102	853150	853198	853246	853294			
34	853341	853389	853437	853485	853533	853581			
35	853629	853677	853725	853773	853821	853869			
36	853917	853965	854013	854061	854109	854157			
37	854205	854253	854301	854349	854397	854445			
38	854493	854540	854588	854636	854684	854732			
39	854780	854828	854876	854924	854972	855020			
40	855068	855116	855164	855212	855260	855308			
41	855356	855404	855452	855500	855548	855596			
42	855644	855692	855740	855788	855836	855884			
43	855932	855980	856028	856076	856124	856172			
44	856220	856267	856315	856363	856411	856459			
45	856507	856555	856603	856651	856699	856747			
46	856795	856843	856891	856939	856987	857035			
47	857083	857131	857179	857227	857275	857323			
48	857371	857419	857467	857515	857563	857611			
49	857659	857707	857755	857803	857851	857899			
50	857947	857995	858043	858091	858139	858187			
51	858235	858283	858331	858379	858427	858475			
52	858523	858571	858619	858667	858715	858763			
53	858811	858859	858907	858955	859003	859051			
54	859099	859147	859195	859243	859291	859339			
55	859387	859435	859483	859531	859579	859627			
56	859675	859723	859771	859819	859867	859915			
57	859963	860011	860059	860107	860155	860203			
58	860251	860299	860347	860395	860443	860491			
59	860539	860587	860635	860683	860731	860779			
	60"	50"	40"	30"	20"	10"			
Co-versed Sine of 8 degrees, or Versed Sine Supplement of 98 degrees.									
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	5	10	14	19	24	29	34	38	43

NATURAL VERSED SINES.

Natural Versed Sine of 82 degrees, or Inversed Sine of 172 degrees.						Minutes
10"	20"	30"	40"	50"		
860875	860923	860971	861019	861067	59	
861163	861211	861259	861307	861355	58	
861451	861499	861547	861595	861643	57	
861739	861787	861835	861883	861931	56	
862027	862075	862123	862171	862219	55	
862315	862363	862411	862459	862507	54	
862603	862651	862700	862748	862796	53	
862892	862940	862988	863036	863084	52	
863180	863228	863276	863324	863372	51	
863468	863516	863564	863612	863660	50	
863756	863804	863852	863900	863948	49	
864044	864092	864140	864188	864236	48	
864332	864380	864429	864477	864525	47	
864621	864669	864717	864765	864813	46	
864909	864957	865005	865053	865101	45	
865197	865245	865293	865341	865389	44	
865485	865533	865581	865629	865678	43	
865774	865822	865870	865918	865966	42	
866062	866110	866158	866206	866254	41	
866350	866398	866446	866494	866542	40	
866638	866686	866735	866783	866831	39	
866927	866975	867023	867071	867119	38	
867215	867263	867311	867359	867407	37	
867503	867551	867599	867647	867696	36	
867792	867840	867888	867936	867984	35	
868080	868128	868176	868224	868272	34	
868368	868416	868464	868513	868561	33	
868657	868705	868753	868801	868849	32	
868945	868993	869041	869089	869137	31	
869233	869282	869330	869378	869426	30	
869522	869570	869618	869666	869714	29	
869810	869858	869906	869954	870003	28	
870099	870147	870195	870243	870291	27	
870387	870435	870483	870531	870579	26	
870676	870724	870772	870820	870868	25	
870964	871012	871060	871108	871156	24	
871252	871301	871349	871397	871445	23	
871541	871589	871637	871685	871733	22	
871829	871878	871926	871974	872022	21	
872118	872166	872214	872262	872310	20	
872406	872455	872503	872551	872599	19	
872695	872743	872791	872839	872887	18	
872983	873032	873080	873128	873176	17	
873272	873320	873368	873416	873464	16	
873561	873609	873657	873705	873753	15	
873849	873897	873945	873993	874042	14	
874138	874186	874234	874282	874330	13	
874426	874474	874522	874571	874619	12	
874715	874763	874811	874859	874907	11	
875003	875052	875100	875148	875196	10	
875292	875340	875388	875436	875484	9	
875581	875629	875677	875725	875773	8	
875869	875917	875966	876014	876062	7	
876158	876206	876254	876302	876350	6	
876447	876495	876543	876591	876639	5	
876735	876783	876832	876880	876928	4	
877024	877072	877120	877168	877216	3	
877313	877361	877409	877457	877505	2	
877601	877649	877698	877746	877794	1	
877890	877938	877986	878034	878083	0	
50"	40"	30"	20"	10"	Minutes	
ersed Sine of 7 degrees, or Versed Sine Supplement of 97 degrees.						
1"	2"	3"	4"	5"	6"	
5	10	14	19	24	29	
38	43					
1"	2"	3"	4"	5"	6"	
1	2	3	4	5	6	
10	14	19	24	29	34	
38	43					

Natural Versed Sine of 83 degrees, or Co-versed Sine of 173 degrees.						Minutes
0"	10"	20"	30"	40"	50"	
878131	878179	878227	878275	878323	878371	59
878419	878468	878516	878564	878612	878660	58
878708	878756	878804	878852	878901	878949	57
879097	879145	879193	879241	879289	879337	56
879286	879334	879382	879430	879478	879526	55
879574	879623	879671	879719	879767	879815	54
879863	879911	879959	880008	880056	880104	53
880152	880200	880248	880296	880344	880393	52
880441	880489	880537	880585	880633	880682	51
880730	880778	880826	880874	880922	880970	50
881018	881067	881115	881163	881211	881259	49
881307	881355	881403	881452	881500	881548	48
881596	881644	881692	881740	881789	881837	47
881885	881933	881981	882029	882077	882126	46
882174	882222	882270	882318	882366	882414	45
882463	882511	882559	882607	882655	882703	44
882751	882800	882848	882896	882944	882992	43
883040	883089	883137	883185	883233	883281	42
883329	883377	883426	883474	883522	883570	41
883618	883666	883714	883763	883811	883859	40
883907	883955	884003	884052	884100	884148	39
884196	884244	884292	884340	884389	884437	38
884485	884533	884581	884629	884678	884726	37
884774	884822	884870	884918	884967	885015	36
885063	885111	885159	885207	885255	885304	35
885352	885400	885448	885496	885544	885593	34
885641	885689	885737	885785	885833	885882	33
885930	885978	886026	886074	886122	886171	32
886219	886267	886315	886363	886411	886460	31
886508	886556	886604	886652	886700	886749	30
886797	886845	886893	886941	886989	887038	29
887086	887134	887182	887230	887278	887327	28
887375	887423	887471	887519	887568	887616	27
887664	887712	887760	887808	887857	887905	26
887953	888001	888049	888097	888146	888194	25
888242	888290	888338	888387	888435	888483	24
888531	888579	888627	888676	888724	888772	23
888820	888868	888917	888965	889013	889061	22
889109	889157	889206	889254	889302	889350	21
889398	889447	889495	889543	889591	889639	20
889687	889736	889784	889832	889880	889928	19
889977	890025	890073	890121	890169	890218	18
890266	890314	890362	890410	890458	890507	17
890555	890603	890651	890699	890748	890796	16
890844	890892	890940	890989	891037	891085	15
891133	891181	891230	891278	891326	891374	14
891422	891470	891519	891567	891615	891663	13
891711	891760	891808	891856	891904	891952	12
892000	892049	892097	892145	892193	892242	11
892290	892338	892386	892434	892483	892531	10
892579	892627	892675	892724	892772	892820	9
892868	892916	892965	893013	893061	893109	8
893157	893206	893254	893302	893350	893398	7
893447	893495	893543	893591	893640	893688	6
893736	893784	893832	893881	893929	893977	5
894025	894073	894122	894170	894218	894266	4
894314	894363	894411	894459	894507	894555	3
894604	894652	894700	894748	894797	894845	2
894893	894941	894989	895038	895086	895134	1
895182	895230	895279	895327	895375	895423	0
60"	50"	40"	30"	20"	10"	Minutes
Co-versed Sine of 6 degrees, or Versed Sine Supplement of 96 degrees.						
Propor.	1"	2"	3"	4"	5"	
parts.	5	10	14	19	24	
	29	34	39	43		

NATURAL VERSED SINES.

Natural Versed Sine of 84 degrees, or Co-versed Sine of 174 degrees.							Natural Versed Sine of 85 degs Co-versed Sine of 175 degree						
Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"	20"	30"	40"	
0	895472	895520	895568	895616	895664	895713	0	912844	912893	912941	912989	913037	
1	895761	895809	895857	895905	895954	896002	1	913134	913182	913231	913279	913327	
2	896050	896098	896147	896195	896243	896291	2	913424	913472	913520	913569	913617	
3	896339	896388	896436	896484	896532	896581	3	913714	913762	913810	913859	913907	
4	896629	896677	896725	896773	896822	896870	4	914003	914052	914100	914148	914197	
5	896918	896966	897015	897063	897111	897159	5	914293	914342	914390	914438	914487	
6	897207	897256	897304	897352	897400	897449	6	914583	914631	914680	914728	914777	
7	897497	897545	897593	897641	897690	897738	7	914873	914921	914970	915018	915067	
8	897786	897834	897883	897931	897979	898027	8	915163	915211	915259	915308	915356	
9	898076	898124	898172	898220	898268	898317	9	915453	915501	915549	915598	915646	
10	898365	898413	898461	898510	898558	898606	10	915742	915791	915839	915887	915935	
11	898654	898703	898751	898799	898847	898895	11	916032	916081	916129	916177	916225	
12	898944	898992	899040	899088	899137	899185	12	916322	916370	916419	916467	916515	
13	899273	899321	899369	899417	899466	899514	13	916612	916660	916709	916757	916805	
14	899523	899571	899619	899667	899715	899764	14	916902	916950	916999	917047	917095	
15	899812	899860	899908	899957	900005	900053	15	917192	917240	917288	917337	917385	
16	900101	900150	900198	900246	900294	900343	16	917482	917530	917578	917627	917675	
17	900391	900439	900487	900536	900584	900632	17	917772	917820	917868	917917	917965	
18	900680	900728	900777	900825	900873	900921	18	918061	918110	918158	918206	918254	
19	900970	901018	901066	901114	901163	901211	19	918351	918400	918448	918496	918544	
20	901259	901307	901356	901404	901452	901500	20	918641	918690	918738	918786	918834	
21	901549	901597	901645	901693	901742	901790	21	918931	918980	919028	919076	919124	
22	901838	901886	901935	901983	902031	902079	22	919221	919270	919318	919366	919414	
23	902128	902176	902224	902272	902321	902369	23	919511	919559	919608	919656	919704	
24	902417	902465	902514	902562	902610	902658	24	919801	919849	919898	919946	919994	
25	902707	902755	902803	902851	902900	902948	25	920091	920139	920188	920236	920284	
26	903096	903144	903193	903241	903289	903337	26	920381	920429	920478	920526	920574	
27	903386	903434	903482	903530	903579	903627	27	920671	920719	920768	920816	920864	
28	903675	903723	903772	903820	903868	903916	28	920961	921009	921058	921106	921154	
29	903965	904013	904061	904109	904158	904206	29	921251	921299	921348	921396	921444	
30	904254	904302	904351	904399	904447	904495	30	921541	921589	921638	921686	921734	
31	904444	904492	904540	904589	904637	904685	31	921831	921879	921928	921976	922024	
32	904733	904782	904830	904878	904926	904975	32	922121	922169	922218	922266	922314	
33	905023	905071	905119	905168	905216	905264	33	922411	922459	922508	922556	922604	
34	905313	905361	905409	905457	905506	905554	34	922701	922749	922798	922846	922894	
35	905602	905650	905698	905747	905795	905843	35	922991	923039	923088	923136	923184	
36	905892	905940	905988	906036	906085	906133	36	923281	923329	923378	923426	923474	
37	906181	906230	906278	906326	906374	906423	37	923571	923619	923668	923716	923764	
38	906471	906519	906567	906616	906664	906712	38	923861	923909	923958	924006	924054	
39	906761	906809	906857	906905	906954	907002	39	924151	924199	924248	924296	924344	
40	907050	907098	907147	907195	907243	907291	40	924441	924489	924538	924586	924634	
41	907340	907388	907436	907485	907533	907581	41	924731	924779	924828	924876	924924	
42	907629	907678	907726	907774	907823	907871	42	925021	925069	925118	925166	925214	
43	907919	907967	908016	908064	908112	908160	43	925311	925359	925408	925456	925504	
44	908209	908257	908305	908354	908402	908450	44	925601	925649	925698	925746	925794	
45	908498	908547	908595	908643	908692	908740	45	925891	925939	925988	926037	926085	
46	908788	908836	908885	908933	908981	909029	46	926182	926230	926278	926327	926375	
47	909078	909126	909174	909223	909271	909319	47	926472	926520	926568	926617	926665	
48	909367	909416	909464	909512	909561	909609	48	926762	926810	926858	926907	926955	
49	909657	909705	909754	909802	909850	909899	49	927052	927100	927149	927197	927245	
50	909947	910095	910043	910092	910140	910188	50	927342	927390	927439	927487	927535	
51	910237	910285	910333	910381	910430	910478	51	927632	927681	927729	927777	927825	
52	910526	910575	910623	910671	910719	910768	52	927922	927971	928019	928067	928115	
53	910816	910864	910913	910961	911009	911057	53	928212	928261	928309	928357	928405	
54	911106	911154	911202	911251	911299	911347	54	928503	928551	928599	928648	928696	
55	911395	911444	911492	911540	911589	911637	55	928793	928841	928889	928938	928986	
56	911685	911733	911782	911830	911878	911927	56	929083	929131	929180	929228	929276	
57	911975	912023	912072	912120	912168	912216	57	929373	929421	929470	929518	929566	
58	912265	912313	912361	912410	912458	912506	58	929663	929712	929760	929808	929856	
59	912554	912603	912651	912699	912748	912796	59	929953	930002	930050	930098	930146	
	60"	50"	40"	30"	20"	10"		60"	50"	40"	30"	20"	
Co-versed Sine of 5 degrees, or Versed Sine Supplement of 95 degrees.							Co-versed Sine of 4 degrees, Versed Sine Supplement of 94 d						
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. } 5 10 14 19 24 29 34 39 43							parts. } 5 10 15 19 24 29 34						

NATURAL VERSED SINES.

Natural Versed Sine of 86 degrees, or Co-versed Sine of 176 degrees.						Minutes
10°	20°	30°	40°	50°		
930292	930340	930389	930437	930485		59
930582	930630	930679	930727	930776		58
930872	930921	930969	931017	931066		57
931162	931211	931259	931308	931356		56
931453	931501	931549	931598	931646		55
931743	931791	931840	931888	931936		54
932033	932081	932130	932178	932227		53
932323	932372	932420	932468	932517		52
932614	932662	932710	932759	932807		51
932904	932952	933000	933049	933097		50
933194	933242	933291	933339	933387		49
933484	933533	933581	933629	933678		48
933774	933823	933871	933920	933968		47
934065	934113	934161	934210	934258		46
934355	934403	934452	934500	934548		45
934645	934694	934742	934790	934839		44
934936	934984	935032	935081	935129		43
935226	935274	935323	935371	935419		42
935516	935564	935613	935661	935710		41
935806	935855	935903	935952	936000		40
936097	936145	936193	936242	936290		39
936387	936435	936484	936532	936580		38
936677	936726	936774	936822	936871		37
936968	937016	937064	937113	937161		36
937258	937306	937355	937403	937451		35
937548	937597	937645	937693	937742		34
937839	937887	937935	937984	938032		33
938129	938177	938226	938274	938322		32
938419	938468	938516	938564	938613		31
938710	938758	938806	938855	938903		30
939000	939048	939097	939145	939193		29
939290	939339	939387	939435	939484		28
939581	939629	939677	939726	939774		27
939871	939919	939968	940016	940064		26
940161	940210	940258	940306	940355		25
940452	940500	940548	940597	940645		24
940742	940790	940839	940887	940936		23
941032	941081	941129	941178	941226		22
941323	941371	941420	941468	941516		21
941613	941662	941710	941758	941807		20
941904	941952	942000	942049	942097		19
942194	942242	942291	942339	942388		18
942484	942533	942581	942630	942678		17
942775	942823	942872	942920	942968		16
943065	943114	943162	943210	943259		15
943356	943404	943452	943501	943549		14
943646	943694	943743	943791	943840		13
943936	943985	944033	944082	944130		12
944227	944275	944324	944372	944421		11
944517	944566	944614	944663	944711		10
944808	944856	944905	944953	945001		9
945098	945147	945195	945243	945292		8
945389	945437	945485	945534	945582		7
945679	945728	945776	945824	945873		6
945970	946018	946066	946115	946163		5
946260	946308	946357	946405	946454		4
946551	946599	946647	946696	946744		3
946841	946889	946938	946986	947035		2
947131	947180	947228	947277	947325		1
947422	947470	947519	947567	947616		0
50°	40°	30°	20°	10°		Minutes
-versed Sine of 3 degrees, or Sine Supplement of 93 degrees.						
1°	2°	3°	4°	5°	6°	7°
5	10	15	19	24	29	34
38	43	48	53	58	63	68
73	78	83	88	93	98	103
138	143	148	153	158	163	168
203	208	213	218	223	228	233
268	273	278	283	288	293	298
333	338	343	348	353	358	363
398	403	408	413	418	423	428
463	468	473	478	483	488	493
528	533	538	543	548	553	558
593	598	603	608	613	618	623
658	663	668	673	678	683	688
723	728	733	738	743	748	753
813	818	823	828	833	838	843
878	883	888	893	898	903	908
943	948	953	958	963	968	973
1008	1013	1018	1023	1028	1033	1038
1073	1078	1083	1088	1093	1098	1103
1138	1143	1148	1153	1158	1163	1168
1203	1208	1213	1218	1223	1228	1233
1268	1273	1278	1283	1288	1293	1298
1333	1338	1343	1348	1353	1358	1363
1403	1408	1413	1418	1423	1428	1433
1468	1473	1478	1483	1488	1493	1498
1533	1538	1543	1548	1553	1558	1563
1603	1608	1613	1618	1623	1628	1633
1668	1673	1678	1683	1688	1693	1698
1733	1738	1743	1748	1753	1758	1763
1803	1808	1813	1818	1823	1828	1833
1868	1873	1878	1883	1888	1893	1898
1933	1938	1943	1948	1953	1958	1963
2003	2008	2013	2018	2023	2028	2033
2068	2073	2078	2083	2088	2093	2098
2133	2138	2143	2148	2153	2158	2163
2203	2208	2213	2218	2223	2228	2233
2268	2273	2278	2283	2288	2293	2298
2333	2338	2343	2348	2353	2358	2363
2403	2408	2413	2418	2423	2428	2433
2468	2473	2478	2483	2488	2493	2498
2533	2538	2543	2548	2553	2558	2563
2603	2608	2613	2618	2623	2628	2633
2668	2673	2678	2683	2688	2693	2698
2733	2738	2743	2748	2753	2758	2763
2803	2808	2813	2818	2823	2828	2833
2868	2873	2878	2883	2888	2893	2898
2933	2938	2943	2948	2953	2958	2963
3003	3008	3013	3018	3023	3028	3033
3068	3073	3078	3083	3088	3093	3098
3133	3138	3143	3148	3153	3158	3163
3203	3208	3213	3218	3223	3228	3233
3268	3273	3278	3283	3288	3293	3298
3333	3338	3343	3348	3353	3358	3363
3403	3408	3413	3418	3423	3428	3433
3468	3473	3478	3483	3488	3493	3498
3533	3538	3543	3548	3553	3558	3563
3603	3608	3613	3618	3623	3628	3633
3668	3673	3678	3683	3688	3693	3698
3733	3738	3743	3748	3753	3758	3763
3803	3808	3813	3818	3823	3828	3833
3868	3873	3878	3883	3888	3893	3898
3933	3938	3943	3948	3953	3958	3963
4003	4008	4013	4018	4023	4028	4033
4068	4073	4078	4083	4088	4093	4098
4133	4138	4143	4148	4153	4158	4163
4203	4208	4213	4218	4223	4228	4233
4268	4273	4278	4283	4288	4293	4298
4333	4338	4343	4348	4353	4358	4363
4403	4408	4413	4418	4423	4428	4433
4468	4473	4478	4483	4488	4493	4498
4533	4538	4543	4548	4553	4558	4563
4603	4608	4613	4618	4623	4628	4633
4668	4673	4678	4683	4688	4693	4698
4733	4738	4743	4748	4753	4758	4763
4803	4808	4813	4818	4823	4828	4833
4868	4873	4878	4883	4888	4893	4898
4933	4938	4943	4948	4953	4958	4963
5003	5008	5013	5018	5023	5028	5033
5068	5073	5078	5083	5088	5093	5098
5133	5138	5143	5148	5153	5158	5163
5203	5208	5213	5218	5223	5228	5233
5268	5273	5278	5283	5288	5293	5298
5333	5338	5343	5348	5353	5358	5363
5403	5408	5413	5418	5423	5428	5433
5468	5473	5478	5483	5488	5493	5498
5533	5538	5543	5548	5553	5558	5563
5603	5608	5613	5618	5623	5628	5633
5668	5673	5678	5683	5688	5693	5698
5733	5738	5743	5748	5753	5758	5763
5803	5808	5813	5818	5823	5828	5833
5868	5873	5878	5883	5888	5893	5898
5933	5938	5943	5948	5953	5958	5963
6003	6008	6013	6018	6023	6028	6033
6068	6073	6078	6083	6088	6093	6098
6133	6138	6143	6148	6153	6158	6163
6203	6208	6213	6218	6223	6228	6233
6268	6273	6278	6283	6288	6293	6298
6333	6338	6343	6348	6353	6358	6363
6403	6408	6413	6418	6423	6428	6433
6468	6473	6478	6483	6488	6493	6498
6533	6538	6543	6548	6553	6558	6563
6603	6608	6613	6618	6623	6628	6633
6668	6673	6678	6683	6688	6693	6698
6733	6738	6743	6748	6753	6758	6763
6803	6808	6813	6818	6823	6828	6833
6868	6873	6878	6883	6888	6893	6898
6933	6938	6943	6948	6953	6958	6963
7003	7008	7013	7018	7023	7028	7033
7068	7073	7078	7083	7088	7093	7098
7133	7138	7143	7148	7153	7158	7163
7203	7208	7213	7218	7223	7228	7233
7268	7273	7278	7283	7288	7293	7298
7333	7338	7343	7348	7353	7358	7363
7403	7408	7413	7418	7423	7428	

NATURAL VERSED SINES.

Minutes		Natural Versed Sine of 88 degrees, or Co-versed sine of 178 degrees.						Minutes
		0°	10°	20°	30°	40°	50°	
0	965101	965149	965197	965246	965294	965343	59	
1	965391	965440	965488	965537	965585	965633	58	
2	965682	965730	965779	965827	965876	965924	57	
3	965973	966021	966070	966118	966166	966215	56	
4	966263	966312	966360	966409	966457	966506	55	
5	966554	966603	966651	966699	966748	966796	54	
6	966845	966893	966942	966990	967039	967087	53	
7	967136	967184	967232	967281	967329	967378	52	
8	967426	967475	967523	967572	967620	967669	51	
9	967717	967765	967814	967862	967911	967959	50	
10	968008	968056	968105	968153	968202	968250	49	
11	968298	968347	968395	968444	968492	968541	48	
12	968589	968638	968686	968735	968783	968832	47	
13	968880	968928	968977	969025	969074	969122	46	
14	969171	969219	969268	969316	969365	969413	45	
15	969461	969509	969558	969607	969655	969704	44	
16	969752	969800	969849	969898	969946	969995	43	
17	970043	970091	970140	970188	970237	970285	42	
18	970334	970382	970431	970479	970528	970576	41	
19	970625	970673	970721	970770	970818	970867	40	
20	970915	970964	971012	971061	971109	971158	39	
21	971206	971255	971303	971351	971400	971448	38	
22	971497	971545	971594	971642	971691	971739	37	
23	971788	971836	971885	971933	971981	972030	36	
24	972078	972127	972175	972224	972272	972321	35	
25	972369	972418	972466	972515	972563	972611	34	
26	972660	972708	972757	972805	972854	972902	33	
27	972951	972999	973048	973096	973145	973193	32	
28	973241	973290	973338	973387	973435	973484	31	
29	973532	973581	973629	973678	973726	973775	30	
30	973823	973872	973920	973968	974017	974065	29	
31	974114	974162	974211	974259	974308	974356	28	
32	974405	974453	974502	974550	974598	974647	27	
33	974695	974744	974792	974841	974889	974938	26	
34	974986	975035	975083	975132	975180	975229	25	
35	975277	975325	975374	975422	975471	975519	24	
36	975568	975616	975665	975713	975762	975810	23	
37	975859	975907	975956	976004	976053	976101	22	
38	976149	976198	976246	976295	976343	976392	21	
39	976440	976489	976537	976586	976634	976683	20	
40	976731	976780	976828	976876	976925	976973	19	
41	977022	977070	977119	977167	977216	977264	18	
42	977313	977361	977410	977458	977507	977555	17	
43	977603	977652	977700	977749	977797	977846	16	
44	977894	977943	977991	978040	978088	978137	15	
45	978185	978234	978282	978331	978379	978427	14	
46	978476	978524	978573	978621	978670	978718	13	
47	978767	978815	978864	978912	978961	979009	12	
48	979058	979106	979155	979203	979251	979300	11	
49	979348	979397	979445	979494	979542	979591	10	
50	979639	979688	979736	979785	979833	979882	9	
51	979930	979979	980027	980075	980124	980172	8	
52	980221	980269	980318	980366	980415	980463	7	
53	980512	980560	980609	980657	980706	980754	6	
54	980803	980851	980900	980948	980996	981045	5	
55	981093	981142	981190	981239	981287	981336	4	
56	981384	981433	981481	981530	981578	981627	3	
57	981675	981724	981772	981820	981869	981917	2	
58	981966	982014	982063	982111	982160	982208	1	
59	982257	982305	982354	982402	982451	982499	0	
Minutes		60°	50°	40°	30°	20°	10°	Minutes
		Co-versed Sine of 1 degree, or Versed Sine Supplement of 91 degrees.						
		Propor. { 1" 2" 3" 4" 5" 6" 7" 8" 9"						
		parts. { 5 10 15 19 24 29 34 39 44						

Minutes		Natural Versed Sine of 89 degrees, or Co-versed Sine of 179 degrees.						Minutes
		0°	10°	20°	30°	40°	50°	
0	982548	982596	982645	982693	982741	982790	59	
1	982838	982887	982935	982984	983032	983081	58	
2	983129	983178	983226	983275	983323	983372	57	
3	983420	983469	983517	983566	983614	983663	56	
4	983711	983759	983808	983857	983905	983954	55	
5	984002	984050	984099	984147	984196	984244	54	
6	984293	984341	984390	984438	984487	984535	53	
7	984584	984632	984680	984729	984777	984826	52	
8	984874	984923	984971	985020	985068	985117	51	
9	985165	985214	985262	985311	985359	985408	50	
10	985456	985505	985553	985602	985650	985698	49	
11	985747	985795	985844	985892	985941	985989	48	
12	986038	986086	986135	986183	986232	986280	47	
13	986329	986377	986426	986474	986523	986571	46	
14	986620	986668	986716	986765	986813	986862	45	
15	986910	986959	987007	987056	987104	987153	44	
16	987201	987250	987298	987347	987395	987444	43	
17	987492	987541	987589	987638	987686	987735	42	
18	987783	987831	987880	987928	987977	988025	41	
19	988074	988122	988171	988219	988268	988316	40	
20	988365	988413	988462	988510	988559	988607	39	
21	988656	988704	988753	988801	988850	988898	38	
22	988946	988995	989043	989092	989140	989189	37	
23	989237	989286	989334	989383	989431	989480	36	
24	989528	989577	989625	989674	989722	989771	35	
25	989819	989868	989916	989965	990013	990061	34	
26	990110	990158	990207	990255	990304	990352	33	
27	990401	990449	990498	990546	990595	990643	32	
28	990692	990740	990789	990837	990886	990934	31	
29	990983	991031	991080	991128	991177	991225	30	
30	991273	991322	991370	991419	991467	991516	29	
31	991564	991613	991661	991710	991758	991807	28	
32	991855	991904	991952	992001	992049	992098	27	
33	992146	992195	992243	992292	992340	992388	26	
34	992437	992485	992534	992582	992631	992679	25	
35	992728	992776	992825	992873	992922	992970	24	
36	993019	993067	993116	993164	993213	993261	23	
37	993310	993358	993407	993455	993504	993552	22	
38	993601	993649	993697	993746	993794	993843	21	
39	993891	993940	993988	994037	994085	994134	20	
40	994182	994231	994279	994328	994376	994425	19	
41	994473	994522	994570	994619	994667	994716	18	
42	994764	994813	994861	994910	994958	995006	17	
43	995055	995103	995152	995200	995249	995297	16	
44	995346	995394	995443	995491	995540	995588	15	
45	995637	995685	995734	995782	995831	995879	14	
46	995928	995976	996025	996073	996122	996170	13	
47	996218	996267	996315	996364	996412	996461	12	
48	996509	996558	996606	996655	996703	996752	11	
49	996800	996849	996897	996946	996994	997043	10	
50	997091	997140	997188	997237	997285	997334	9	
51	997382	997430	997479	997527	997576	997624	8	
52	997673	997721	997770	997818	997867	997915	7	
53	997964	998012	998061	998109	998158	998206	6	
54	998255	998303	998352	998400	998449	998497	5	
55	998546	998594	998643	998691	998739	998788	4	
56	998836	998885	998933	998982	999030	999079	3	
57	999127	999176	999224	999273	999321	999370	2	
58	999418	999467	999515	999564	999612	999661	1	
59	999709	999758	999806	999855	999903	999952	0	
Minutes		60°	50°	40°	30°	20°	10°	Minutes
		Co-versed Sine of 0 degree, or Versed Sine Supplement of 90 degrees.						
		Propor. { 1" 2" 3" 4" 5" 6" 7" 8" 9"						
		parts. { 5 10 15 19 24 29 34 39 44						

TABLE XXVII.

93

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 90 degrees, or Natural Sine (rejecting radius) of 0 degree.						Minutes			
0'	10'	20'	30'	40'	50'				
0.00000	0.00048	0.00097	0.00145	0.00194	0.00242	50			
0.00291	0.00339	0.00388	0.00436	0.00485	0.00533	58			
0.00582	0.00630	0.00679	0.00727	0.00776	0.00824	57			
0.00873	0.00921	0.00970	0.01018	0.01067	0.01115	56			
0.01164	0.01212	0.01261	0.01309	0.01357	0.01406	55			
0.01454	0.01503	0.01551	0.01600	0.01648	0.01697	54			
0.01745	0.01794	0.01842	0.01891	0.01939	0.01988	53			
0.02036	0.02085	0.02133	0.02182	0.02230	0.02279	52			
0.02327	0.02376	0.02424	0.02473	0.02521	0.02570	51			
0.02618	0.02666	0.02715	0.02763	0.02812	0.02860	50			
0.02909	0.02957	0.03006	0.03054	0.03103	0.03151	49			
0.03200	0.03248	0.03297	0.03345	0.03394	0.03442	48			
0.03491	0.03539	0.03588	0.03636	0.03685	0.03733	47			
0.03782	0.03830	0.03878	0.03927	0.03975	0.04024	46			
0.04072	0.04121	0.04169	0.04218	0.04266	0.04315	45			
0.04363	0.04412	0.04460	0.04509	0.04557	0.04606	44			
0.04654	0.04703	0.04751	0.04800	0.04848	0.04897	43			
0.04945	0.04994	0.05042	0.05091	0.05139	0.05187	42			
0.05236	0.05284	0.05333	0.05381	0.05430	0.05478	41			
0.05527	0.05575	0.05624	0.05672	0.05721	0.05769	40			
0.05818	0.05866	0.05915	0.05963	0.06012	0.06060	39			
0.06109	0.06157	0.06206	0.06254	0.06303	0.06351	38			
0.06399	0.06448	0.06496	0.06545	0.06593	0.06642	37			
0.06690	0.06739	0.06787	0.06836	0.06884	0.06933	36			
0.06981	0.07030	0.07078	0.07127	0.07175	0.07224	35			
0.07272	0.07321	0.07369	0.07418	0.07466	0.07515	34			
0.07563	0.07612	0.07660	0.07708	0.07757	0.07805	33			
0.07854	0.07902	0.07951	0.07999	0.08048	0.08096	32			
0.08145	0.08193	0.08242	0.08290	0.08339	0.08387	31			
0.08436	0.08484	0.08533	0.08581	0.08630	0.08678	30			
0.08727	0.08775	0.08823	0.08872	0.08920	0.08969	29			
0.09017	0.09066	0.09114	0.09163	0.09211	0.09260	28			
0.09308	0.09357	0.09405	0.09454	0.09502	0.09551	27			
0.09599	0.09648	0.09696	0.09745	0.09793	0.09842	26			
0.09890	0.09939	0.09987	0.10035	0.10084	0.10132	25			
0.10181	0.10229	0.10278	0.10326	0.10375	0.10423	24			
0.10472	0.10520	0.10569	0.10617	0.10666	0.10714	23			
0.10763	0.10811	0.10860	0.10908	0.10957	0.11005	22			
0.11054	0.11102	0.11150	0.11199	0.11247	0.11296	21			
0.11344	0.11393	0.11441	0.11490	0.11538	0.11587	20			
0.11635	0.11684	0.11732	0.11781	0.11829	0.11878	19			
0.11926	0.11975	0.12023	0.12072	0.12120	0.12169	18			
0.12217	0.12265	0.12314	0.12362	0.12411	0.12459	17			
0.12508	0.12556	0.12605	0.12653	0.12702	0.12750	16			
0.12799	0.12847	0.12896	0.12944	0.12993	0.13041	15			
0.13090	0.13138	0.13187	0.13235	0.13284	0.13332	14			
0.13380	0.13429	0.13477	0.13526	0.13574	0.13623	13			
0.13671	0.13720	0.13768	0.13817	0.13865	0.13914	12			
0.13962	0.14011	0.14059	0.14108	0.14156	0.14205	11			
0.14253	0.14302	0.14350	0.14398	0.14447	0.14495	10			
0.14544	0.14592	0.14641	0.14689	0.14738	0.14786	9			
0.14835	0.14883	0.14932	0.14980	0.15029	0.15077	8			
0.15126	0.15174	0.15223	0.15271	0.15320	0.15368	7			
0.15416	0.15465	0.15513	0.15562	0.15610	0.15659	6			
0.15707	0.15756	0.15804	0.15853	0.15901	0.15950	5			
0.15998	0.16047	0.16095	0.16143	0.16192	0.16241	4			
0.16289	0.16337	0.16386	0.16434	0.16483	0.16531	3			
0.16580	0.16628	0.16677	0.16725	0.16774	0.16822	2			
0.16871	0.16919	0.16968	0.17016	0.17065	0.17113	1			
0.17162	0.17210	0.17259	0.17307	0.17355	0.17404	0			
60'	50'	40'	30'	20'	10'	Minutes			
Versed Sine Supplement of 89 degrees, or Natural Co-sine (rejecting radius) of 89 degrees.									
1"	2"	3"	4"	5"	6"	7"	8"	9"	
16	5	10	15	19	24	29	34	39	44

Versed Sine of 91 degrees, or Natural Sine (rejecting radius) of 1 degree.						Minutes			
0'	10'	20'	30'	40'	50'				
0.017452	0.17501	0.17549	0.17598	0.17646	0.17695	50			
0.17743	0.17792	0.17840	0.17889	0.17937	0.17986	58			
0.18034	0.18083	0.18131	0.18180	0.18228	0.18276	57			
0.18325	0.18373	0.18422	0.18470	0.18519	0.18567	56			
0.18616	0.18664	0.18713	0.18761	0.18810	0.18858	55			
0.18907	0.18955	0.19004	0.19052	0.19100	0.19149	54			
0.19197	0.19246	0.19294	0.19343	0.19391	0.19440	53			
0.19488	0.19537	0.19585	0.19634	0.19682	0.19731	52			
0.19779	0.19828	0.19876	0.19925	0.19973	0.20021	51			
0.20070	0.20118	0.20167	0.20215	0.20264	0.20312	50			
0.20361	0.20409	0.20458	0.20506	0.20555	0.20603	49			
0.20652	0.20700	0.20749	0.20797	0.20845	0.20894	48			
0.20942	0.20991	0.21039	0.21088	0.21136	0.21185	47			
0.21233	0.21282	0.21330	0.21379	0.21427	0.21476	46			
0.21524	0.21573	0.21621	0.21669	0.21718	0.21766	45			
0.21815	0.21863	0.21912	0.21960	0.22009	0.22057	44			
0.22106	0.22154	0.22203	0.22251	0.22300	0.22348	43			
0.22397	0.22445	0.22493	0.22542	0.22590	0.22639	42			
0.22687	0.22736	0.22784	0.22833	0.22881	0.22930	41			
0.22978	0.23027	0.23075	0.23124	0.23172	0.23220	40			
0.23269	0.23317	0.23366	0.23414	0.23463	0.23511	39			
0.23560	0.23608	0.23657	0.23705	0.23754	0.23802	38			
0.23851	0.23899	0.23948	0.23996	0.24044	0.24093	37			
0.24141	0.24190	0.24238	0.24287	0.24335	0.24384	36			
0.24432	0.24481	0.24529	0.24578	0.24626	0.24675	35			
0.24723	0.24771	0.24820	0.24868	0.24917	0.24965	34			
0.25014	0.25062	0.25111	0.25159	0.25208	0.25256	33			
0.25305	0.25353	0.25402	0.25450	0.25498	0.25547	32			
0.25595	0.25644	0.25692	0.25741	0.25789	0.25838	31			
0.25886	0.25935	0.25983	0.26032	0.26080	0.26128	30			
0.26177	0.26225	0.26274	0.26322	0.26371	0.26419	29			
0.26468	0.26516	0.26565	0.26613	0.26662	0.26710	28			
0.26759	0.26807	0.26855	0.26904	0.26952	0.27001	27			
0.27049	0.27098	0.27146	0.27195	0.27243	0.27292	26			
0.27340	0.27389	0.27437	0.27485	0.27534	0.27582	25			
0.27631	0.27679	0.27728	0.27776	0.27825	0.27873	24			
0.27922	0.27970	0.28019	0.28067	0.28115	0.28164	23			
0.28212	0.28261	0.28309	0.28358	0.28406	0.28455	22			
0.28503	0.28552	0.28600	0.28649	0.28697	0.28746	21			
0.28794	0.28842	0.28891	0.28939	0.28988	0.29036	20			
0.29085	0.29133	0.29182	0.29230	0.29279	0.29327	19			
0.29375	0.29424	0.29472	0.29521	0.29569	0.29618	18			
0.29666	0.29715	0.29763	0.29812	0.29860	0.29909	17			
0.29957	0.30005	0.30054	0.30102	0.30151	0.30199	16			
0.30248	0.30296	0.30345	0.30393	0.30442	0.30490	15			
0.30539	0.30587	0.30635	0.30684	0.30732	0.30781	14			
0.30829	0.30878	0.30926	0.30975	0.31023	0.31072	13			
0.31120	0.31168	0.31217	0.31265	0.31314	0.31362	12			
0.31411	0.31459	0.31508	0.31556	0.31605	0.31653	11			
0.31702	0.31750	0.31798	0.31847	0.31895	0.31944	10			
0.31992	0.32041	0.32089	0.32138	0.32186	0.32235	9			
0.32283	0.32331	0.32380	0.32428	0.32477	0.32525	8			
0.32574	0.32622	0.32671	0.32719	0.32768	0.32816	7			
0.32864	0.32913	0.32961	0.33010	0.33058	0.33107	6			
0.33155	0.33204	0.33252	0.33301	0.33349	0.33397	5			
0.33446	0.33494	0.33543	0.33591	0.33640	0.33688	4			
0.33737	0.33785	0.33834	0.33882	0.33930	0.33979	3			
0.34027	0.34076	0.34124	0.34173	0.34221	0.34270	2			
0.34318	0.34367	0.34415	0.34463	0.34512	0.34560	1			
0.34609	0.34657	0.34706	0.34754	0.34803	0.34851	0			
60'	50'	40'	30'	20'	10'	Minutes			
Versed Sine Supplement of 88 degrees, or Natural Co-sine (rejecting radius) of 88 degrees.									
1"	2"	3"	4"	5"	6"	7"	8"	9"	
16	5	10	15	19	24	29	34	39	44

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJE

Minutes								Versed Sine of 92 degrees, or Natural Sine of 2 degrees.								Minutes									
								0"	10"	20"	30"	40"	50"												
0	1	034899	034948	034996	035045	035093	035142	59	0	1	052336	052384	052433	052481	052530	052578	58								
1	0	035190	035239	035287	035336	035384	035432	57	1	0	052626	052675	052723	052772	052820	052869	57								
2	0	035481	035529	035578	035626	035675	035723	56	2	0	052917	052965	053014	053062	053111	053159	56								
3	0	035772	035820	035869	035917	035965	036014	55	3	0	053207	053256	053304	053353	053401	053450	55								
4	0	036062	036111	036159	036208	036256	036305	54	4	0	053498	053546	053595	053643	053692	053740	54								
5	0	036353	036401	036450	036498	036547	036595	53	5	0	053788	053837	053885	053934	053982	054031	53								
6	0	036644	036692	036741	036789	036838	036886	52	6	0	054079	054127	054176	054224	054272	054321	52								
7	0	036934	036983	037031	037080	037128	037177	51	7	0	054369	054418	054466	054515	054563	054612	51								
8	0	037225	037274	037322	037370	037419	037467	50	8	0	054660	054708	054757	054805	054853	054902	50								
9	0	037516	037564	037613	037661	037710	037758	49	9	0	054950	054999	055047	055095	055144	055192	49								
10	1	037806	037855	037903	037952	038000	038049	48	10	1	055241	055289	055337	055386	055434	055483	48								
11	0	038097	038146	038194	038242	038291	038339	47	11	0	055531	055579	055628	055676	055725	055773	47								
12	0	038388	038436	038485	038533	038582	038630	46	12	0	055822	055870	055918	055967	056015	056063	46								
13	0	038678	038727	038775	038824	038872	038921	45	13	0	056112	056160	056209	056257	056305	056354	45								
14	0	038969	039018	039066	039114	039163	039211	44	14	0	056402	056451	056499	056548	056596	056645	44								
15	0	039260	039308	039357	039405	039454	039502	43	15	0	056693	056741	056790	056838	056886	056935	43								
16	0	039550	039599	039647	039696	039744	039793	42	16	0	056983	057032	057080	057128	057177	057225	42								
17	0	039841	039890	039938	039986	040035	040083	41	17	0	057274	057322	057370	057419	057467	057516	41								
18	0	040132	040180	040229	040277	040326	040374	40	18	0	057564	057612	057661	057709	057758	057806	40								
19	0	040422	040471	040519	040568	040616	040665	39	19	0	057854	057903	057951	057999	058048	058096	39								
20	1	040713	040762	040810	040858	040907	040955	38	20	1	058145	058193	058242	058290	058338	058387	38								
21	0	041004	041052	041101	041149	041198	041246	37	21	0	058435	058484	058532	058580	058629	058677	37								
22	0	041294	041343	041391	041440	041488	041537	36	22	0	058726	058774	058822	058871	058919	058967	36								
23	0	041585	041633	041682	041730	041779	041827	35	23	0	059016	059064	059113	059161	059209	059258	35								
24	0	041876	041924	041973	042021	042069	042118	34	24	0	059306	059355	059403	059452	059500	059548	34								
25	0	042166	042215	042263	042312	042360	042408	33	25	0	059597	059645	059694	059742	059790	059839	33								
26	0	042457	042505	042554	042602	042651	042699	32	26	0	059887	059935	059984	060032	060080	060129	32								
27	0	042748	042796	042844	042893	042941	042990	31	27	0	060177	060226	060274	060323	060371	060419	31								
28	0	043038	043087	043135	043183	043232	043280	30	28	0	060468	060516	060565	060613	060661	060710	30								
29	0	043329	043377	043426	043474	043523	043571	29	29	0	060758	060807	060855	060903	060952	060999	29								
30	1	043619	043668	043716	043765	043813	043862	28	30	1	061049	061097	061145	061194	061242	061290	28								
31	0	043910	043958	044007	044055	044104	044152	27	31	0	061339	061387	061436	061484	061532	061581	27								
32	0	044201	044249	044297	044346	044394	044443	26	32	0	061629	061678	061726	061774	061823	061871	26								
33	0	044491	044540	044588	044637	044685	044733	25	33	0	061920	061968	062016	062065	062113	062161	25								
34	0	044782	044830	044879	044927	044976	045024	24	34	0	062210	062258	062307	062355	062403	062452	24								
35	0	045072	045121	045169	045218	045266	045315	23	35	0	062500	062549	062597	062645	062694	062742	23								
36	0	045363	045411	045460	045508	045557	045605	22	36	0	062791	062839	062887	062936	062984	063032	22								
37	0	045654	045702	045750	045799	045847	045896	21	37	0	063081	063129	063178	063226	063274	063323	21								
38	0	045944	045993	046041	046089	046138	046186	20	38	0	063371	063420	063468	063516	063565	063613	20								
39	0	046235	046283	046332	046380	046428	046477	19	39	0	063661	063710	063758	063807	063855	063903	19								
40	1	046525	046574	046622	046671	046719	046767	18	40	1	063952	064000	064048	064097	064145	064193	18								
41	0	046816	046864	046913	046961	047010	047058	17	41	0	064242	064290	064339	064387	064436	064484	17								
42	0	047106	047155	047203	047252	047300	047349	16	42	0	064532	064581	064629	064677	064726	064774	16								
43	0	047397	047445	047494	047542	047591	047639	15	43	0	064823	064871	064920	064968	065016	065065	15								
44	0	047688	047736	047784	047833	047881	047930	14	44	0	065113	065161	065210	065258	065306	065355	14								
45	0	047978	048027	048075	048123	048172	048220	13	45	0	065403	065452	065500	065548	065597	065645	13								
46	0	048269	048317	048366	048414	048462	048511	12	46	0	065693	065742	065790	065839	065887	065936	12								
47	0	048559	048608	048656	048704	048753	048801	11	47	0	065984	066032	066080	066129	066177	066225	11								
48	0	048850	048898	048947	048995	049043	049092	10	48	0	066274	066322	066371	066419	066467	066516	10								
49	0	049140	049189	049237	049286	049334	049382	9	49	0	066564	066613	066661	066709	066758	066806	9								
50	1	049431	049479	049528	049576	049625	049673	8	50	1	066854	066903	066951	067000	067048	067097	8								
51	0	049721	049770	049818	049867	049915	049963	7	51	0	067145	067193	067241	067290	067338	067387	7								
52	0	050012	050060	050109	050157	050206	050254	6	52	0	067435	067483	067532	067580	067628	067677	6								
53	0	050302	050351	050399	050448	050496	050545	5	53	0	067725	067773	067822	067870	067919	067967	5								
54	0	050593	050641	050690	050738	050787	050835	4	54	0	068015	068064	068112	068161	068209	068258	4								
55	0	050883	050932	050980	051029	051077	051126	3	55	0	068306	068354	068402	068451	068499	068548	3								
56	0	051174	051222	051271	051319	051368	051416	2	56	0	068596	068644	068692	068741	068789	068838	2								
57	0	051464	051513	051561	051610	051658	051707	1	57	0	068886	068934	068983	069031	069079	069128	1								
58	0	051755	051803	051852	051900	051949	051997	0	58	0	069176	069224	069273	069321	069370	069418	0								
59	0	052045	052094	052142	052191	052239	052288	0	59	0	069466	069515	069563	069611	069660	069708	0								
Minutes								60"	50"	40"	30"	20"	10"	Minutes											
								Versed Sine Supplement of 87 degrees, or Natural Cosine of 87 degrees.																	
								Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"								
								parts.	5	10	15	19	24	29	34	39	44								
									10	20	30	40	50	60	70	80	90								
									100	110	120	130	140	150	160	170	180								
									190	200	210	220	230	240	250	260	270								
									280	290	300	310	320	330	340	350									
									360	370	380	390	400	410	420	430									
									440	450	460	470	480	490	500	510									
									520	530	540	550	560	570	580	590									
									600	610	620	630	640	650	660	670									
									680	690	700	710	720	730	740	750									
									760	770	780	790	800	810	820	830									
									840	850	860	870	880	890	900	910									
									920	930	940	950	960	970	980	990									
									1000	1010	1020	1030	1040	1050	1060	1070									
									1080	1090	1100	1110	1120	1130	1140	1150									

TABLE XXVII.

95

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 94 degrees, or Natural Sine of 4 degrees.							Minutes		
0°	10°	20°	30°	40°	50°				
1.069756	069805	069853	069902	069950	069998		50		
070047	070095	070143	070192	070240	070288		58		
070337	070385	070434	070482	070530	070579		57		
070627	070675	070724	070772	070820	070869		56		
070917	070966	071014	071062	071111	071159		55		
071207	071256	071304	071352	071401	071449		54		
071497	071546	071594	071643	071691	071739		53		
071788	071836	071884	071933	071981	072029		52		
072078	072126	072174	072223	072271	072319		51		
072368	072416	072465	072513	072561	072610		50		
1.072658	072706	072755	072803	072851	072900		49		
072948	072996	073045	073093	073141	073190		48		
073238	073287	073335	073383	073432	073480		47		
073528	073577	073625	073673	073722	073770		46		
073818	073867	073915	073963	074012	074060		45		
074108	074157	074205	074254	074302	074350		44		
074399	074447	074495	074544	074592	074640		43		
074689	074737	074785	074834	074882	074930		42		
074979	075027	075075	075124	075172	075220		41		
075269	075317	075365	075414	075462	075511		40		
1.075559	075607	075656	075704	075752	075801		39		
075849	075897	075946	075994	076042	076091		38		
076139	076187	076236	076284	076332	076381		37		
076429	076477	076526	076574	076622	076671		36		
076719	076767	076816	076864	076912	076961		35		
077009	077057	077106	077154	077202	077251		34		
077299	077347	077396	077444	077492	077541		33		
077589	077637	077686	077734	077782	077831		32		
077879	077927	077976	078024	078072	078121		31		
078169	078217	078266	078314	078362	078411		30		
1.078459	078507	078556	078604	078652	078701		29		
078749	078797	078846	078894	078942	078991		28		
079039	079087	079136	079184	079232	079281		27		
079329	079377	079426	079474	079522	079571		26		
079619	079667	079716	079764	079812	079861		25		
079909	079957	080006	080054	080102	080151		24		
080199	080247	080296	080344	080392	080441		23		
080489	080537	080585	080634	080682	080730		22		
080779	080827	080875	080924	080972	081020		21		
081069	081117	081165	081214	081262	081310		20		
1.081359	081407	081455	081504	081552	081600		19		
081649	081697	081745	081794	081842	081890		18		
081939	081987	082035	082083	082132	082180		17		
082228	082277	082325	082373	082422	082470		16		
082518	082567	082615	082663	082712	082760		15		
082808	082857	082905	082953	083001	083050		14		
083098	083146	083195	083243	083291	083340		13		
083388	083436	083485	083533	083581	083630		12		
083678	083726	083774	083823	083871	083919		11		
083968	084016	084064	084113	084161	084209		10		
1.084258	084306	084354	084402	084451	084499		9		
084547	084596	084644	084692	084741	084789		8		
084837	084886	084934	084982	085030	085079		7		
085127	085175	085224	085272	085320	085369		6		
085417	085465	085514	085562	085610	085658		5		
085707	085755	085803	085852	085900	085948		4		
085997	086045	086093	086141	086190	086238		3		
086286	086335	086383	086431	086480	086528		2		
086576	086624	086673	086721	086769	086818		1		
086866	086914	086963	087011	087059	087107		0		
60°	50°	40°	30°	20°	10°		Minutes		
Versed Sine Supplement of 85 degrees, or Natural Cosine of 85 degrees.							Minutes		
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	5	10	15	19	24	29	34	39	44

Versed Sine of 95 degrees, or Natural Sine of 5 degrees.							Minutes		
0°	10°	20°	30°	40°	50°				
1.087156	087204	087252	087301	087349	087397		59		
087446	087494	087542	087590	087639	087687		58		
087735	087784	087832	087880	087928	087977		57		
088025	088073	088122	088170	088218	088267		56		
088315	088363	088411	088460	088508	088556		55		
088605	088653	088701	088749	088798	088846		54		
088894	088943	088991	089039	089087	089136		53		
089184	089232	089281	089329	089377	089425		52		
089474	089522	089570	089619	089667	089715		51		
089763	089812	089860	089908	089957	090005		50		
1.090053	090101	090150	090198	090246	090295		49		
090343	090391	090439	090488	090536	090584		48		
090633	090681	090729	090777	090826	090874		47		
090922	090971	091019	091067	091115	091164		46		
091212	091260	091308	091357	091405	091453		45		
091502	091550	091598	091646	091695	091743		44		
091791	091840	091888	091936	091984	092033		43		
092081	092129	092177	092226	092274	092322		42		
092371	092419	092467	092515	092564	092612		41		
092660	092709	092757	092805	092853	092902		40		
1.092950	092998	093046	093095	093143	093191		39		
093239	093288	093336	093384	093433	093481		38		
093529	093577	093626	093674	093722	093770		37		
093819	093867	093915	093964	094012	094060		36		
094108	094157	094205	094254	094302	094350		35		
094398	094446	094494	094543	094591	094639		34		
094687	094736	094784	094832	094881	094929		33		
094977	095025	095074	095122	095170	095218		32		
095267	095315	095363	095411	095460	095508		31		
095556	095604	095653	095701	095749	095797		30		
1.095846	095894	095942	095991	096039	096087		29		
096135	096184	096232	096280	096328	096377		28		
096425	096473	096521	096570	096618	096666		27		
096714	096763	096811	096859	096907	096956		26		
097004	097052	097100	097149	097197	097245		25		
097293	097342	097390	097438	097486	097535		24		
097583	097631	097679	097728	097776	097824		23		
097872	097921	097969	098017	098065	098114		22		
098162	098210	098258	098307	098355	098403		21		
098451	098500	098548	098596	098644	098693		20		
1.098741	098789	098837	098886	098934	098982		19		
099030	099079	099127	099175	099223	099272		18		
099320	099368	099416	099464	099513	099561		17		
099609	099657	099706	099754	099802	099850		16		
099899	099947	099995	100043	100092	100140		15		
100188	100236	100285	100333	100381	100429		14		
100477	100526	100574	100622	100670	100719		13		
100767	100815	100863	100912	100960	101008		12		
101056	101105	101153	101201	101249	101297		11		
101346	101394	101442	101490	101539	101587		10		
1.101635	101683	101732	101780	101828	101876		9		
101924	101973	102021	102069	102117	102166		8		
102214	102262	102310	102359	102407	102455		7		
102503	102551	102600	102648	102696	102744		6		
102793	102841	102889	102937	102985	103034		5		
103082	103130	103178	103227	103275	103323		4		
103371	103419	103468	103516	103564	103612		3		
103661	103709	103757	103805	103853	103902		2		
103950	103998	104046	104095	104143	104191		1		
104239	104287	104336	104384	104432	104480		0		
60°	50°	40°	30°	20°	10°		Minutes		
Versed Sine Supplement of 84 degrees, or Natural Cosine of 84 degrees.							Minutes		
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	5	10	14	19	24	29	34	39	44

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE RE

Versed Sine of 96 degrees, or Natural Sine of 6 degrees.						
Minutes	0"	10"	20"	30"	40"	50"
0	1. 104528	104577	104625	104673	104721	104770
1	104818	104866	104914	104962	105011	105059
2	105107	105155	105203	105252	105300	105348
3	105396	105445	105493	105541	105589	105637
4	105686	105734	105782	105830	105878	105927
5	105975	106023	106071	106119	106168	106216
6	106264	106312	106360	106409	106457	106505
7	106553	106602	106650	106698	106746	106794
8	106843	106891	106939	106987	107035	107084
9	107132	107180	107228	107276	107325	107373
10	1. 107421	107469	107517	107566	107614	107662
11	107710	107758	107807	107855	107903	107951
12	108000	108048	108096	108144	108192	108240
13	108289	108337	108385	108433	108481	108530
14	108578	108626	108674	108722	108770	108819
15	108867	108915	108963	109011	109060	109108
16	109156	109204	109252	109301	109349	109397
17	109445	109493	109542	109590	109638	109686
18	109734	109782	109831	109879	109927	109975
19	110023	110072	110120	110168	110216	110264
20	1. 110313	110361	110409	110457	110505	110553
21	110602	110650	110698	110746	110794	110843
22	110891	110939	110987	111035	111083	111132
23	111180	111228	111276	111324	111373	111421
24	111469	111517	111565	111613	111662	111710
25	111758	111806	111854	111903	111951	111999
26	112047	112095	112143	112192	112240	112288
27	112336	112384	112432	112481	112529	112577
28	112625	112673	112722	112770	112818	112866
29	112914	112962	113011	113059	113107	113155
30	1. 113203	113251	113300	113348	113396	113444
31	113492	113540	113589	113637	113685	113733
32	113781	113829	113878	113926	113974	114022
33	114070	114118	114167	114215	114263	114311
34	114359	114407	114456	114504	114552	114600
35	114648	114696	114745	114793	114841	114889
36	114937	114985	115033	115082	115130	115178
37	115226	115274	115322	115371	115419	115467
38	115515	115563	115611	115660	115708	115756
39	115804	115852	115900	115948	115997	116045
40	1. 116093	116141	116189	116237	116286	116334
41	116382	116430	116478	116526	116574	116623
42	116671	116719	116767	116815	116863	116911
43	116960	117008	117056	117104	117152	117200
44	117249	117297	117345	117393	117441	117489
45	117537	117586	117634	117682	117730	117778
46	117826	117874	117923	117971	118019	118067
47	118115	118163	118211	118260	118308	118356
48	118404	118452	118500	118548	118597	118645
49	118693	118741	118789	118837	118885	118933
50	1. 118982	119030	119078	119126	119174	119222
51	119270	119318	119367	119415	119463	119511
52	119559	119607	119656	119704	119752	119800
53	119848	119896	119944	119992	120041	120089
54	120137	120185	120233	120281	120329	120377
55	120426	120474	120522	120570	120618	120666
56	120714	120763	120811	120859	120907	120955
57	121003	121051	121099	121148	121196	121244
58	121292	121340	121388	121436	121484	121532
59	121581	121629	121677	121725	121773	121821
Minutes	60"	50"	40"	30"	20"	10"
Versed Sine Supplement of 83 degrees, or Natural Co-sine of 83 degrees.						
Proport.	1"	2"	3"	4"	5"	6"
parts.	5	10	14	19	24	29

Versed Sine of 97 degrees, or Natural Sine of 7 degrees.						
Minutes	0"	10"	20"	30"	40"	
0	1. 121869	121917	121966	122014	122062	
1	122158	122206	122254	122302	122350	
2	122447	122495	122543	122591	122639	
3	122735	122784	122832	122880	122928	
4	123024	123072	123120	123168	123216	
5	123313	123361	123409	123457	123505	
6	123601	123650	123698	123746	123794	
7	123890	123938	123986	124034	124082	
8	124179	124227	124275	124323	124371	
9	124467	124516	124564	124612	124660	
10	1. 124756	124804	124852	124900	124948	
11	125045	125093	125141	125189	125237	
12	125333	125381	125429	125478	125526	
13	125622	125670	125718	125766	125814	
14	125910	125958	126007	126055	126103	
15	126199	126247	126295	126343	126391	
16	126488	126536	126584	126632	126680	
17	126776	126824	126872	126920	126968	
18	127065	127113	127161	127209	127257	
19	127353	127401	127449	127497	127545	
20	1. 127642	127690	127738	127786	127834	
21	127930	127978	128026	128074	128122	
22	128219	128267	128315	128363	128411	
23	128507	128555	128603	128651	128699	
24	128796	128844	128892	128940	128988	
25	129084	129132	129180	129228	129276	
26	129373	129421	129469	129517	129565	
27	129661	129709	129757	129805	129853	
28	129949	129997	130046	130094	130142	
29	130238	130286	130334	130382	130430	
30	1. 130526	130574	130622	130670	130718	
31	130815	130863	130911	130959	131007	
32	131103	131151	131199	131247	131295	
33	131391	131439	131487	131536	131584	
34	131680	131728	131776	131824	131872	
35	131968	132016	132064	132112	132160	
36	132256	132304	132353	132401	132449	
37	132545	132593	132641	132689	132737	
38	132833	132881	132929	132977	133025	
39	133121	133169	133217	133265	133313	
40	1. 133410	133458	133506	133554	133602	
41	133698	133746	133794	133842	133890	
42	133986	134034	134082	134130	134178	
43	134274	134322	134370	134418	134466	
44	134553	134601	134649	134697	134745	
45	134851	134899	134947	134995	135043	
46	135139	135187	135235	135283	135331	
47	135427	135475	135523	135571	135619	
48	135716	135764	135812	135860	135908	
49	136004	136052	136100	136148	136196	
50	1. 136292	136340	136388	136436	136484	
51	136580	136628	136676	136724	136772	
52	136868	136916	136964	137012	137060	
53	137156	137204	137252	137300	137348	
54	137445	137493	137541	137589	137637	
55	137733	137781	137829	137877	137925	
56	138021	138069	138117	138165	138213	
57	138309	138357	138405	138453	138501	
58	138597	138645	138693	138741	138789	
59	138885	138933	138981	139029	139077	
Minutes	60"	50"	40"	30"	20"	10"
Versed Sine Supplement of 82 deg Natural Co-sine of 82 deg						
Proport.	1"	2"	3"	4"	5"	6"
parts.	5	10	14	19	24	29

AL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 98 degrees, or Natural Sine of 8 degrees.						Minutes
10'	20'	30'	40'	50'		
173	139221	139269	139317	139365	139413	59
161	139509	139557	139605	139653	139701	58
149	139797	139845	139893	139941	139989	57
137	140085	140133	140181	140229	140277	56
125	140373	140421	140469	140517	140565	55
113	140661	140709	140757	140805	140853	54
101	140949	140997	141045	141093	141141	53
89	141237	141285	141333	141381	141429	52
77	141525	141573	141621	141669	141717	51
65	141813	141861	141909	141957	142005	50
53	142101	142149	142197	142245	142293	49
41	142389	142437	142485	142533	142581	48
29	142677	142725	142773	142821	142869	47
17	142965	143013	143061	143109	143157	46
5	143253	143301	143349	143397	143445	45
43	143541	143589	143637	143685	143733	44
31	143829	143877	143924	143972	144020	43
19	144117	144164	144212	144260	144308	42
7	144405	144452	144500	144548	144596	41
45	144693	144740	144788	144836	144884	40
33	144981	145028	145076	145124	145172	39
21	145260	145307	145354	145402	145450	38
9	145548	145595	145643	145691	145738	37
57	145836	145883	145931	145978	146026	36
45	146124	146171	146219	146267	146314	35
33	146412	146459	146507	146554	146602	34
21	146700	146747	146795	146842	146890	33
9	146988	147035	147083	147130	147178	32
57	147266	147313	147361	147408	147456	31
45	147554	147601	147649	147696	147744	30
33	147842	147889	147937	147984	148032	29
21	148130	148177	148225	148272	148320	28
9	148418	148465	148513	148560	148608	27
57	148706	148753	148801	148848	148896	26
45	149094	149141	149189	149236	149284	25
33	149382	149429	149477	149524	149572	24
21	149670	149717	149765	149812	149860	23
9	149958	150005	150053	150100	150148	22
57	150246	150293	150341	150388	150436	21
45	150534	150581	150629	150676	150724	20
33	150822	150869	150917	150964	151012	19
21	151110	151157	151205	151252	151300	18
9	151398	151445	151493	151540	151588	17
57	151676	151723	151771	151818	151866	16
45	151964	152011	152059	152106	152154	15
33	152242	152289	152337	152384	152432	14
21	152530	152577	152625	152672	152720	13
9	152818	152865	152913	152960	153008	12
57	153106	153153	153201	153248	153296	11
45	153384	153431	153479	153526	153574	10
33	153672	153719	153767	153814	153862	9
21	153960	154007	154055	154102	154150	8
9	154248	154295	154343	154390	154438	7
57	154536	154583	154631	154678	154726	6
45	154824	154871	154919	154966	155014	5
33	155112	155159	155207	155254	155302	4
21	155400	155447	155495	155542	155590	3
9	155688	155735	155783	155830	155878	2
57	155976	156023	156071	156118	156166	1
45	156264	156311	156359	156406	156454	0
33	156542	156589	156637	156684	156732	59
21	156830	156877	156925	156972	157020	58
9	157118	157165	157213	157260	157308	57
57	157406	157453	157501	157548	157596	56
45	157684	157731	157779	157826	157874	55
33	157972	158019	158067	158114	158162	54
21	158250	158297	158345	158392	158440	53
9	158528	158575	158623	158670	158718	52
57	158806	158853	158901	158948	158996	51
45	159084	159131	159179	159226	159274	50
33	159362	159409	159457	159504	159552	49
21	159640	159687	159735	159782	159830	48
9	159918	160005	160053	160100	160148	47
57	160206	160253	160301	160348	160396	46
45	160484	160531	160579	160626	160674	45
33	160762	160809	160857	160904	160952	44
21	161050	161097	161145	161192	161240	43
9	161338	161385	161433	161480	161528	42
57	161626	161673	161721	161768	161816	41
45	161914	161961	162009	162056	162104	40
33	162202	162249	162297	162344	162392	39
21	162490	162537	162585	162632	162680	38
9	162778	162825	162873	162920	162968	37
57	163066	163113	163161	163208	163256	36
45	163344	163391	163439	163486	163534	35
33	163622	163669	163717	163764	163812	34
21	163910	163957	164005	164052	164100	33
9	164198	164245	164293	164340	164388	32
57	164486	164533	164581	164628	164676	31
45	164774	164821	164869	164916	164964	30
33	165062	165109	165157	165204	165252	29
21	165350	165397	165445	165492	165540	28
9	165638	165685	165733	165780	165828	27
57	165926	165973	166021	166068	166116	26
45	166214	166261	166309	166356	166404	25
33	166502	166549	166597	166644	166692	24
21	166790	166837	166885	166932	166980	23
9	167078	167125	167173	167220	167268	22
57	167366	167413	167461	167508	167556	21
45	167654	167701	167749	167796	167844	20
33	167942	167989	168037	168084	168132	19
21	168230	168277	168325	168372	168420	18
9	168518	168565	168613	168660	168708	17
57	168806	168853	168901	168948	168996	16
45	169094	169141	169189	169236	169284	15
33	169382	169429	169477	169524	169572	14
21	169670	169717	169765	169812	169860	13
9	169958	170005	170053	170100	170148	12
57	170246	170293	170341	170388	170436	11
45	170534	170581	170629	170676	170724	10
33	170822	170869	170917	170964	171012	9
21	171110	171157	171205	171252	171300	8
9	171398	171445	171493	171540	171588	7
57	171676	171723	171771	171818	171866	6
45	171964	172011	172059	172106	172154	5
33	172242	172289	172337	172384	172432	4
21	172530	172577	172625	172672	172720	3
9	172818	172865	172913	172960	173008	2
57	173106	173153	173201	173248	173296	1
45	173384	173431	173479	173526	173574	0
33	173672	173719	173767	173814	173862	59
21	173960	174007	174055	174102	174150	58
9	174248	174295	174343	174390	174438	57
57	174536	174583	174631	174678	174726	56
45	174824	174871	174919	174966	175014	55
33	175112	175159	175207	175254	175302	54
21	175400	175447	175495	175542	175590	53
9	175688	175735	175783	175830	175878	52
57	175976	176023	176071	176118	176166	51
45	176264	176311	176359	176406	176454	50
33	176542	176589	176637	176684	176732	49
21	176830	176877	176925	176972	177020	48
9	177118	177165	177213	177260	177308	47
57	177406	177453	177501	177548	177596	46
45	177684	177731	177779	177826	177874	45
33	177972	178019	178067	178114	178162	44
21	178250	178297	178345	178392	178440	43
9	178528	178575	178623	178670	178718	42
57	178806	178853	178901	178948	178996	41
45	179084	179131	179179	179226	179274	40
33	179362	179409	179457	179504	179552	39
21	179640	179687	179735	179782	179830	38
9	179918	180005	180053	180100	180148	37
57	180206	180253	180301	180348	180396	36
45	180484	180531	180579	180626	180674	35
33	180762	180809	180857	180904	180952	34
21	181050	181097	181145	181192	181240	33
9	181338	181385	181433	181480	181528	32
57	181626	181673	181721	181768	181816	31
45	181914	181961	182009	182056	182104	30
33	182202	182249	182297	182344	182392	29
21	182490	182537	182585	182632	182680	28
9	182778	182825	182873	182920	182968	27
57	183066	183113	183161	183208	183256	26
45	183344	183391	183439	183486	183534	25
33	183622	183669	183717	183764	183812	24
21	183910	183957	184005	184052	184100	23
9	184198	184245	184293	184340	184388	22
57	184486	184533	184581	184628	184676	21
45	184774	184821	184869	184916	184964	20
33	185062	185109	185157	185204	185252	19
21	185350	185397	185445	185492	185540	18
9	185638	185685	185733	185780	185828	17
57	185926	185973	186021	186068	186116	16
45						

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJ

Versed Sine of 100 degrees, or Natural Sine of 10 degrees.							Minutes	Versed Sine of 101 degrees, or Natural Sine of 11 degrees.							Minutes
Minutes	0'	10'	20'	30'	40'	50'		Minutes	0'	10'	20'	30'	40'		
0	1. 173648	173696	173744	173791	173839	173887	50	0	1. 190809	190857	190904	190952	190999	191047	
1	173935	173982	174030	174078	174126	174173	51	1	191095	191142	191190	191237	191285	191332	
2	174221	174269	174317	174364	174412	174460	52	2	191380	191428	191475	191523	191570	191618	
3	174508	174555	174603	174651	174698	174746	53	3	191666	191713	191761	191808	191856	191903	
4	174794	174842	174889	174937	174985	175033	54	4	191951	191999	192046	192094	192141	192189	
5	175080	175128	175176	175224	175271	175319	55	5	192237	192284	192332	192379	192427	192474	
6	175367	175414	175462	175510	175558	175605	56	6	192522	192570	192617	192665	192713	192760	
7	175653	175701	175749	175796	175844	175892	57	7	192807	192855	192903	192950	192998	193046	
8	175939	175987	176035	176083	176130	176178	58	8	193093	193140	193188	193236	193283	193331	
9	176226	176274	176321	176369	176417	176464	59	9	193378	193426	193473	193521	193568	193616	
10	1. 176512	176560	176608	176655	176703	176751	49	10	1. 193664	193711	193759	193806	193854	193901	
11	176798	176846	176894	176942	176989	177037	48	11	193949	193997	194044	194092	194139	194187	
12	177085	177132	177180	177228	177276	177323	47	12	194234	194282	194329	194377	194425	194472	
13	177371	177419	177466	177514	177562	177610	46	13	194520	194567	194615	194663	194710	194758	
14	177657	177705	177753	177800	177848	177896	45	14	194805	194853	194900	194948	194995	195043	
15	177944	177991	178039	178087	178134	178182	44	15	195090	195138	195185	195233	195281	195328	
16	178230	178277	178325	178373	178421	178468	43	16	195376	195423	195471	195518	195566	195613	
17	178516	178564	178611	178659	178707	178755	42	17	195661	195708	195756	195804	195851	195899	
18	178802	178850	178898	178945	178993	179041	41	18	195946	195994	196041	196089	196136	196184	
19	179088	179136	179184	179231	179279	179327	40	19	196231	196279	196326	196374	196421	196469	
20	1. 179375	179422	179470	179518	179565	179613	39	20	1. 196517	196564	196612	196659	196707	196754	
21	179661	179708	179756	179804	179852	179900	38	21	196802	196849	196897	196944	196992	197039	
22	179947	179995	180042	180090	180138	180185	37	22	197087	197135	197182	197230	197277	197325	
23	180233	180281	180328	180376	180424	180471	36	23	197372	197420	197467	197515	197562	197610	
24	180519	180567	180615	180662	180710	180758	35	24	197657	197705	197752	197800	197847	197895	
25	180805	180853	180901	180948	180996	181044	34	25	197942	197990	198038	198085	198133	198181	
26	181091	181139	181187	181234	181282	181330	33	26	198228	198275	198323	198370	198418	198465	
27	181377	181425	181473	181520	181568	181616	32	27	198513	198560	198608	198655	198703	198750	
28	181663	181711	181759	181806	181854	181902	31	28	198798	198845	198893	198940	198988	199035	
29	181950	181997	182045	182093	182140	182188	30	29	199083	199130	199178	199225	199273	199320	
30	1. 182236	182283	182331	182379	182426	182474	29	30	1. 199368	199415	199463	199510	199558	199605	
31	182522	182569	182617	182665	182712	182760	28	31	199653	199700	199748	199795	199843	199890	
32	182808	182855	182903	182951	182998	183046	27	32	199938	199985	200033	200080	200128	200175	
33	183094	183141	183189	183236	183284	183332	26	33	200223	200270	200318	200366	200413	200461	
34	183379	183427	183475	183522	183570	183618	25	34	200508	200555	200603	200650	200698	200745	
35	183665	183713	183761	183808	183856	183904	24	35	200793	200840	200888	200935	200983	201030	
36	183951	183999	184047	184094	184142	184190	23	36	201078	201125	201173	201220	201268	201315	
37	184237	184285	184333	184380	184428	184476	22	37	201363	201410	201458	201505	201553	201600	
38	184523	184571	184618	184666	184714	184761	21	38	201648	201695	201743	201790	201838	201885	
39	184809	184857	184904	184952	185000	185047	20	39	201933	201980	202028	202075	202123	202170	
40	1. 185095	185143	185190	185238	185285	185333	19	40	1. 202218	202265	202313	202360	202407	202455	
41	185381	185428	185476	185524	185571	185619	18	41	202502	202550	202597	202645	202692	202740	
42	185667	185714	185762	185810	185857	185905	17	42	202787	202835	202882	202930	202977	203025	
43	185952	186000	186048	186095	186143	186191	16	43	203072	203120	203167	203215	203262	203310	
44	186238	186286	186334	186381	186429	186476	15	44	203357	203404	203452	203499	203547	203594	
45	186524	186572	186619	186667	186715	186762	14	45	203642	203689	203737	203784	203832	203879	
46	186810	186857	186905	186953	187000	187048	13	46	203927	203974	204021	204069	204116	204164	
47	187096	187143	187191	187238	187286	187334	12	47	204211	204259	204306	204354	204401	204449	
48	187381	187429	187477	187524	187572	187619	11	48	204496	204544	204591	204638	204686	204733	
49	187667	187715	187762	187810	187858	187905	10	49	204781	204828	204876	204923	204971	205018	
50	1. 187953	188000	188048	188096	188143	188191	9	50	1. 205065	205113	205160	205208	205255	205303	
51	188238	188286	188334	188381	188429	188477	8	51	205350	205398	205445	205493	205540	205588	
52	188524	188572	188619	188667	188715	188762	7	52	205635	205682	205730	205777	205825	205872	
53	188810	188857	188905	188953	189000	189048	6	53	205920	205967	206014	206062	206109	206157	
54	189095	189143	189191	189238	189286	189333	5	54	206204	206252	206299	206347	206394	206442	
55	189381	189429	189476	189524	189571	189619	4	55	206489	206536	206584	206631	206679	206726	
56	189667	189714	189762	189809	189857	189905	3	56	206773	206820	206868	206916	206963	207011	
57	189952	190000	190047	190095	190143	190190	2	57	207058	207105	207153	207200	207248	207295	
58	190238	190285	190333	190381	190428	190476	1	58	207343	207390	207438	207485	207533	207580	
59	190523	190571	190619	190666	190714	190761	0	59	207627	207675	207722	207769	207817	207864	
Minutes	60"	50"	40"	30"	20"	10"	Minutes	Minutes	60"	50"	40"	30"	20"	Minutes	
Versed Sine Supplement of 79 degrees, or Natural Co-sine of 79 degrees.															
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"															
parts. { 5 10 14 19 24 29 34 38 43															
Versed Sine Supplement of 78 degrees, or Natural Co-sine of 78 degrees.															
Proport. { 1" 2" 3" 4" 5" 6" 7"															
parts. { 5 9 14 19 24 28 33															

NATURAL CO-SINES IF RADIUS BE REJECTED.

Versed Sine of 102 degrees, or tural Sine of 12 degrees.					Minutes	Versed Sine of 103 degrees, or Natural Sine of 13 degrees.					Minutes		
10°	20°	30°	40°	50°	Minutes	0°	10°	20°	30°	40°	50°	Minutes	
7959	208007	208054	208101	208149	59	1	224951	224998	225046	225093	225140	225187	59
8244	208291	208338	208386	208434	58	2	225234	225282	225329	225376	225423	225471	58
8529	208576	208623	208670	208718	57	3	225518	225565	225612	225659	225707	225754	57
8813	208860	208907	208955	209002	56	4	225801	225848	225896	225943	225990	226037	56
9097	209144	209192	209239	209287	55	5	226085	226132	226179	226226	226273	226321	55
9382	209429	209476	209524	209571	54	6	226368	226415	226462	226510	226557	226604	54
9666	209713	209761	209808	209856	53	7	226651	226698	226746	226793	226840	226887	53
9950	209998	210045	210093	210140	52	8	226935	226982	227029	227076	227123	227171	52
0235	210282	210330	210377	210424	51	9	227218	227265	227312	227360	227407	227454	51
0519	210567	210614	210661	210709	50	10	227501	227548	227596	227643	227690	227737	50
0804	210851	210898	210946	210993	49	11	227784	227831	227879	227926	227973	228020	49
1088	211135	211183	211230	211277	48	12	228068	228115	228162	228209	228256	228304	48
1372	211420	211467	211514	211562	47	13	228351	228398	228445	228492	228540	228587	47
1656	211704	211751	211799	211846	46	14	228634	228681	228728	228776	228823	228870	46
1941	211988	212036	212083	212130	45	15	228917	228964	229012	229059	229106	229153	45
2225	212272	212320	212367	212415	44	16	229200	229247	229295	229342	229389	229436	44
2509	212557	212604	212651	212699	43	17	229484	229531	229578	229625	229672	229719	43
2794	212841	212888	212936	212983	42	18	229767	229814	229861	229908	229955	230003	42
3078	213125	213172	213220	213267	41	19	230050	230097	230144	230191	230238	230286	41
3362	213409	213457	213504	213551	40	20	230333	230380	230427	230474	230521	230569	40
3646	213693	213741	213788	213836	39	21	230616	230663	230710	230757	230805	230852	39
3930	213978	214025	214072	214120	38	22	230899	230946	230993	231040	231088	231135	38
4214	214262	214309	214357	214404	37	23	231182	231229	231276	231323	231371	231418	37
4499	214546	214593	214641	214688	36	24	231465	231512	231559	231606	231654	231701	36
4783	214830	214877	214925	214972	35	25	231748	231795	231842	231889	231937	231984	35
5067	215114	215161	215209	215256	34	26	232031	232078	232125	232172	232220	232267	34
5351	215398	215446	215493	215540	33	27	232314	232361	232408	232455	2		

IN REVERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 106 degrees, or Natural Sine of 16 degrees.						Minutes
10°	20°	30°	40°	50°		
275684	275731	275777	275824	275870	59	
275964	276010	276057	276103	276150	58	
276243	276290	276336	276383	276430	57	
276523	276569	276616	276662	276709	56	
276802	276849	276895	276942	276989	55	
277082	277128	277175	277221	277268	54	
277361	277408	277454	277501	277548	53	
277641	277687	277734	277780	277827	52	
277920	277967	278013	278060	278106	51	
278200	278246	278293	278339	278386	50	
278479	278526	278572	278619	278665	49	
278758	278805	278851	278898	278945	48	
279038	279084	279131	279177	279224	47	
279317	279364	279410	279457	279503	46	
279596	279643	279689	279736	279782	45	
279876	279922	279969	280015	280062	44	
280155	280201	280248	280294	280341	43	
280434	280481	280527	280574	280620	42	
280713	280760	280806	280853	280899	41	
280992	281039	281085	281132	281179	40	
281272	281318	281365	281411	281458	39	
281551	281597	281644	281690	281737	38	
281830	281876	281923	281969	282016	37	
282109	282155	282202	282248	282295	36	
282388	282434	282481	282527	282574	35	
282667	282714	282760	282807	282853	34	
282946	282993	283039	283086	283132	33	
283225	283272	283318	283364	283411	32	
283504	283550	283597	283643	283690	31	
283783	283829	283876	283922	283969	30	
284062	284108	284155	284201	284248	29	
284341	284387	284434	284480	284527	28	
284620	284666	284713	284759	284805	27	
284898	284945	284991	285038	285084	26	
285177	285224	285270	285317	285363	25	
285456	285503	285549	285595	285642	24	
285735	285781	285828	285874	285921	23	
286014	286060	286106	286153	286199	22	
286292	286339	286385	286432	286478	21	
286571	286617	286664	286710	286757	20	
286850	286896	286943	286989	287035	19	
287128	287175	287222	287268	287314	18	
287407	287453	287500	287546	287593	17	
287686	287732	287778	287825	287871	16	
287964	288011	288057	288103	288150	15	
288243	288289	288336	288382	288428	14	
288521	288568	288614	288660	288707	13	
288800	288846	288893	288939	288985	12	
289078	289125	289171	289217	289264	11	
289357	289403	289449	289496	289542	10	
289635	289682	289728	289774	289821	9	
289914	289960	290006	290053	290099	8	
290192	290238	290285	290331	290377	7	
290470	290517	290563	290610	290656	6	
290749	290795	290841	290888	290934	5	
291027	291073	291120	291166	291212	4	
291305	291352	291398	291444	291491	3	
291583	291630	291676	291723	291769	2	
291862	291908	291954	292001	292047	1	
292140	292186	292233	292279	292325	0	
60°	40°	30°	20°	10°		Minutes
e Supplement of 73 degrees, or ral Co-sine of 73 degrees.						
2°	3	4	5	6	7	8
9	14	19	23	28	33	37
42						
Versed Sine of 107 degrees, or Natural Sine of 17 degrees.						Minutes
0°	10°	20°	30°	40°	50°	
1. 292372	292418	292464	292511	292557	292604	59
292650	292696	292743	292789	292835	292882	58
292928	292974	293021	293067	293113	293160	57
293206	293252	293299	293345	293392	293438	56
293484	293531	293577	293623	293670	293716	55
293762	293809	293855	293901	293948	293994	54
294040	294087	294133	294179	294226	294272	53
294318	294365	294411	294457	294504	294550	52
294596	294643	294689	294735	294782	294828	51
294874	294921	294967	295013	295060	295106	50
1. 295152	295199	295245	295291	295338	295384	49
295430	295476	295523	295569	295615	295662	48
295708	295754	295801	295847	295893	295940	47
295986	296032	296079	296125	296171	296217	46
296264	296310	296356	296403	296449	296495	45
296542	296588	296634	296680	296727	296773	44
296819	296866	296912	296958	297005	297051	43
297097	297143	297190	297236	297282	297329	42
297375	297421	297467	297514	297560	297606	41
297653	297699	297745	297791	297838	297884	40
1. 297930	297977	298023	298069	298115	298162	39
298208	298254	298300	298347	298393	298439	38
298486	298532	298578	298624	298671	298717	37
298763	298809	298856	298902	298948	298995	36
299041	299087	299133	299179	299226	299272	35
299318	299365	299411	299457	299503	299550	34
299596	299642	299688	299735	299781	299827	33
299873	299920	299966	300012	300058	300105	32
300151	300197	300243	300290	300336	300382	31
300428	300475	300521	300567	300613	300660	30
1. 300706	300752	300798	300845	300891	300937	29
300983	301029	301076	301122	301168	301214	28
301261	301307	301353	301399	301446	301492	27
301538	301584	301630	301677	301723	301769	26
301815	301862	301908	301954	302000	302046	25
302093	302139	302185	302231	302277	302324	24
302370	302416	302462	302509	302555	302601	23
302647	302693	302740	302786	302832	302878	22
302924	302971	303017	303063	303109	303155	21
303202	303248	303294	303340	303386	303433	20
1. 303479	303525	303571	303617	303664	303710	19
303756	303802	303848	303894	303941	303987	18
304033	304079	304125	304172	304218	304264	17
304310	304356	304403	304449	304495	304541	16
304587	304633	304680	304726	304772	304818	15
304864	304910	304957	305003	305049	305095	14
305141	305187	305234	305280	305326	305372	13
305418	305464	305511	305557	305603	305649	12
305695	305741	305788	305834	305880	305926	11
305972	306018	306065	306111	306157	306203	10
1. 306249	306295	306341	306388	306434	306480	9
306526	306572	306618	306665	306711	306757	8
306803	306849	306895	306941	306988	307034	7
307080	307126	307172	307218	307264	307310	6
307357	307403	307449	307495	307541	307587	5
307633	307680	307726	307772	307818	307864	4
307910	307956	308002	308049	308095	308141	3
308187	308233	308279	308325	308371	308418	2
308464	308510	308556	308602	308648	308694	1
308740	308786	308833	308879	308925	308971	0
60°	50°	40°	30°	20°	10°	Minutes
Versed Sine Supplement of 72 degrees, or Natural Co-sine of 72 degrees.						
Proport. 1	2	3	4	5	6	7
parts. 5	9	14	18	23	28	33
37	42					

NATURAL CO-SINES IF RADIUS BE REJECTED.

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJE

Versed Sine of 108 degrees, or Natural Sine of 18 degrees.							Minutes	Versed Sine of 109 degrees, or Natural Sine of 19 degrees.							Minutes				
Minutes	0°	10°	20°	30°	40°	50°	Minutes	Minutes	0°	10°	20°	30°	40°	Minutes					
0	1.309017	309063	309109	309155	309201	309248	59	0	1.325568	325614	325660	325706	325752	59					
1	309294	309340	309386	309432	309478	309524	58	1	325843	325889	325935	325981	326027	58					
2	309570	309616	309662	309709	309755	309801	57	2	326118	326164	326210	326256	326302	57					
3	309847	309893	309939	309985	310031	310077	56	3	326393	326439	326485	326531	326577	56					
4	310123	310169	310216	310262	310308	310354	55	4	326668	326714	326760	326806	326852	55					
5	310400	310446	310492	310538	310584	310630	54	5	326943	326989	327035	327080	327126	54					
6	310676	310723	310769	310815	310861	310907	53	6	327218	327264	327310	327355	327401	53					
7	310953	310999	311045	311091	311137	311183	52	7	327493	327539	327584	327630	327676	52					
8	311229	311275	311322	311368	311414	311460	51	8	327768	327813	327859	327905	327951	51					
9	311506	311552	311598	311644	311690	311736	50	9	328042	328088	328134	328180	328226	50					
10	1.311782	311828	311874	311920	311966	312013	49	10	1.328317	328363	328409	328455	328500	49					
11	312059	312105	312151	312197	312243	312289	48	11	328592	328638	328683	328729	328775	48					
12	312335	312381	312427	312473	312519	312565	47	12	328867	328913	328958	329004	329050	47					
13	312611	312657	312703	312749	312795	312841	46	13	329141	329187	329233	329279	329324	46					
14	312888	312934	312980	313026	313072	313118	45	14	329416	329462	329508	329553	329599	45					
15	313164	313210	313256	313302	313348	313394	44	15	329691	329736	329782	329828	329874	44					
16	313440	313486	313532	313578	313624	313670	43	16	329965	330011	330057	330103	330148	43					
17	313716	313762	313808	313854	313900	313946	42	17	330240	330286	330331	330377	330423	42					
18	313992	314038	314085	314131	314177	314223	41	18	330514	330560	330606	330652	330697	41					
19	314269	314315	314361	314407	314453	314499	40	19	330789	330835	330880	330926	330972	40					
20	1.314545	314591	314637	314683	314729	314775	39	20	1.331063	331109	331155	331201	331246	39					
21	314821	314867	314913	314959	315005	315051	38	21	331338	331384	331429	331475	331521	38					
22	315097	315143	315189	315235	315281	315327	37	22	331612	331658	331704	331750	331795	37					
23	315373	315419	315465	315511	315557	315603	36	23	331887	331933	331978	332024	332070	36					
24	315649	315695	315741	315787	315833	315879	35	24	332161	332207	332253	332298	332344	35					
25	315925	315971	316017	316063	316109	316155	34	25	332435	332481	332527	332573	332618	34					
26	316201	316247	316293	316339	316385	316431	33	26	332710	332756	332801	332847	332893	33					
27	316477	316523	316569	316615	316661	316707	32	27	332984	333030	333076	333121	333167	32					
28	316753	316799	316845	316891	316937	316983	31	28	333258	333304	333350	333396	333441	31					
29	317029	317075	317121	317167	317213	317259	30	29	333533	333578	333624	333670	333715	30					
30	1.317305	317351	317397	317443	317489	317535	29	30	1.333807	333853	333898	333944	333989	29					
31	317580	317626	317672	317718	317764	317810	28	31	334081	334127	334172	334218	334264	28					
32	317856	317902	317948	317994	318040	318086	27	32	334355	334401	334447	334492	334538	27					
33	318132	318178	318224	318270	318316	318362	26	33	334629	334675	334721	334766	334812	26					
34	318408	318454	318500	318546	318592	318638	25	34	334903	334949	334995	335040	335086	25					
35	318684	318730	318776	318822	318867	318913	24	35	335178	335223	335269	335315	335360	24					
36	318959	319005	319051	319097	319143	319189	23	36	335452	335497	335543	335589	335634	23					
37	319235	319281	319327	319373	319419	319465	22	37	335726	335771	335817	335863	335908	22					
38	319511	319557	319603	319648	319694	319740	21	38	336000	336045	336091	336136	336182	21					
39	319786	319832	319878	319924	319970	320016	20	39	336274	336319	336365	336411	336456	20					
40	1.320062	320108	320154	320200	320246	320292	19	40	1.336547	336593	336639	336685	336730	19					
41	320337	320383	320429	320475	320521	320567	18	41	336821	336867	336913	336958	337004	18					
42	320613	320659	320705	320751	320797	320843	17	42	337095	337141	337187	337232	337278	17					
43	320889	320934	320980	321026	321072	321118	16	43	337369	337415	337460	337506	337552	16					
44	321164	321210	321256	321302	321348	321394	15	44	337643	337689	337734	337780	337825	15					
45	321439	321485	321531	321577	321623	321669	14	45	337917	337962	338008	338054	338099	14					
46	321715	321761	321807	321853	321899	321944	13	46	338190	338236	338282	338327	338373	13					
47	321990	322036	322082	322128	322174	322220	12	47	338464	338510	338555	338601	338647	12					
48	322266	322312	322357	322403	322449	322495	11	48	338738	338784	338829	338875	338920	11					
49	322541	322587	322633	322679	322725	322770	10	49	339012	339057	339103	339148	339194	10					
50	1.322816	322862	322908	322954	323000	323046	9	50	1.339285	339331	339376	339422	339468	9					
51	323092	323138	323183	323229	323275	323321	8	51	339559	339604	339650	339696	339741	8					
52	323367	323413	323459	323505	323550	323596	7	52	339832	339878	339924	339969	340015	7					
53	323642	323688	323734	323780	323826	323872	6	53	340106	340152	340197	340243	340288	6					
54	323917	323963	324009	324055	324101	324147	5	54	340380	340425	340471	340516	340562	5					
55	324193	324238	324284	324330	324376	324422	4	55	340653	340699	340744	340790	340835	4					
56	324468	324514	324559	324605	324651	324697	3	56	340927	340972	341018	341063	341109	3					
57	324743	324789	324835	324880	324926	324972	2	57	341200	341246	341291	341337	341382	2					
58	325018	325064	325110	325156	325201	325247	1	58	341473	341519	341565	341610	341656	1					
59	325293	325339	325385	325431	325476	325522	0	59	341747	341792	341838	341883	341929	0					
	60°	50°	40°	30°	20°	10°	Minutes		60°	50°	40°	30°	20°	Minutes					
Versed Sine Supplement of 71 degrees, or Natural Co-sine of 71 degrees.								Versed Sine Supplement of 70 degrees, Natural Co-sine of 70 degrees.											
Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"	Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	5	9	14	18	23	28	32	37	41	parts.	5	9	14	18	23	28	32	37	41

VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Sine of 110 degrees, or Natural Sine of 20 degrees.					Minutes	Sine of 111 degrees, or Natural Sine of 21 degrees.					Minutes						
10"	20"	30"	40"	50"		0"	10"	20"	30"	40"	50"						
142066	342111	342157	342202	342248	59	1. 358368	358413	358458	358504	358549	358594	59					
142339	342385	342430	342476	342521	58	358640	358685	358730	358775	358821	358866	58					
142612	342658	342703	342749	342795	57	358911	358956	359002	359047	359092	359137	57					
142886	342931	342977	343022	343067	56	359183	359228	359273	359318	359363	359409	56					
143159	343204	343250	343295	343341	55	359454	359499	359544	359590	359635	359680	55					
143432	343478	343523	343569	343614	54	359725	359771	359816	359861	359906	359952	54					
143705	343751	343796	343842	343887	53	359997	360042	360087	360132	360178	360223	53					
143978	344024	344069	344115	344160	52	360268	360313	360359	360404	360449	360494	52					
144251	344297	344343	344388	344434	51	360540	360585	360630	360675	360720	360766	51					
144525	344570	344616	344661	344707	50	360811	360856	360901	360946	360992	361037	50					
144798	344843	344889	344934	344980	49	1. 361082	361127	361173	361218	361263	361308	49					
145071	345116	345162	345207	345253	48	361353	361399	361444	361489	361534	361579	48					
145344	345389	345435	345480	345526	47	361625	361670	361715	361760	361805	361851	47					
145617	345662	345708	345753	345799	46	361896	361941	361986	362031	362077	362122	46					
145890	345935	345981	346026	346072	45	362167	362212	362257	362302	362348	362393	45					
146163	346208	346254	346299	346344	44	362438	362483	362528	362574	362619	362664	44					
146435	346481	346526	346572	346617	43	362709	362754	362799	362845	362890	362935	43					
146708	346754	346799	346845	346890	42	362980	363025	363071	363116	363161	363206	42					
146981	347027	347072	347118	347163	41	363251	363296	363342	363387	363432	363477	41					
147254	347299	347345	347390	347436	40	363522	363567	363613	363658	363703	363748	40					
147527	347572	347618	347663	347708	39	1. 363793	363838	363884	363929	363974	364019	39					
147799	347845	347890	347936	347981	38	364064	364109	364154	364200	364245	364290	38					
148072	348118	348163	348208	348254	37	364335	364380	364425	364470	364516	364561	37					
148345	348390	348435	348481	348527	36	364606	364651	364696	364741	364787	364832	36					
148617	348663	348708	348754	348799	35	364877	364922	364967	365012	365057	365103	35					
148890	348936	348981	349026	349071	34	365148	365193	365238	365283	365328	365373	34					
149163	349208	349254	349299	349344	33	365418	365464	365509	365554	365599	365644	33					
149435	349481	349526	349572	349617	32	365689	365734	365779	365825	365870	365915	32					
149708	349753	349799	349844	349889	31	365960	366005	366050	366095	366140	366185	31					
149980	350026	350071	350117	350162	30	366231	366276	366321	366366	366411	366456	30					
150253	350298	350344	350389	350434	29	1. 366501	366546	366591	366637	366682	366727	29					
150525	350571	350616	350661	350707	28	366772	366817	366862	366907	366952	366997	28					
150798	350843	350888	350934	350979	27	367042	367088	367133	367178	367223	367268	27					
151070	351115	351161	351206	351252	26	367313	367358	367403	367448	367493	367538	26					
151342	351388	351433	351478	351524	25	367584	367629	367674	367719	367764	367809	25					
151615	351660	351706	351751	351796	24	367854	367899	367944	367989	368034	368079	24					
151887	351932	351978	352023	352069	23	368125	368170	368215	368260	368305	368350	23					
152159	352205	352250	352295	352341	22	368395	368440	368485	368530	368575	368620	22					
152431	352477	352522	352567	352613	21	368665	368710	368756	368801	368846	368891	21					
152704	352749	352794	352840	352885	20	368936	368981	369026	369071	369116	369161	20					
152976	353021	353067	353112	353157	19	1. 369206	369251	369296	369341	369386	369431	19					
153248	353293	353339	353384	353429	18	369476	369522	369567	369612	369657	369702	18					
153520	353566	353611	353656	353702	17	369747	369792	369837	369882	369927	369972	17					
153792	353838	353883	353928	353974	16	370017	370062	370107	370152	370197	370242	16					
154064	354110	354155	354200	354246	15	370287	370332	370377	370422	370467	370512	15					
154336	354382	354427	354472	354518	14	370557	370602	370647	370693	370738	370783	14					
154608	354654	354699	354744	354790	13	370828	370873	370918	370963	371008	371053	13					
154880	354926	354971	355016	355062	12	371098	371143	371188	371233	371278	371323	12					
155152	355198	355243	355288	355334	11	371368	371413	371458	371503	371548	371593	11					
155424	355470	355515	355560	355605	10	371638	371683	371728	371773	371818	371863	10					
155696	355741	355787	355832	355877	9	1. 371908	371953	371998	372043	372088	372133	9					
155968	356013	356059	356104	356149	8	372178	372223	372268	372313	372358	372403	8					
156240	356285	356330	356376	356421	7	372448	372493	372538	372583	372628	372673	7					
156512	356557	356602	356647	356693	6	372718	372763	372808	372853	372898	372943	6					
156783	356829	356874	356919	356964	5	372988	373033	373078	373123	373168	373213	5					
157055	357100	357146	357191	357236	4	373258	373303	373348	373393	373438	373483	4					
157327	357372	357417	357463	357508	3	373528	373572	373617	373662	373707	373752	3					
157598	357644	357689	357734	357779	2	373797	373842	373887	373932	373977	374022	2					
157870	357915	357961	358006	358051	1	374067	374112	374157	374202	374247	374292	1					
158142	358187	358232	358277	358323	0	374337	374382	374427	374472	374517	374562	0					
50"	40"	30"	20"	10"	Minutes	60"	50"	40"	30"	20"	10"	Minutes					
Sine Supplement of 69 degrees, or Natural Co-sine of 69 degrees.					Minutes	Sine Supplement of 68 degrees, or Natural Co-sine of 68 degrees.					Minutes						
2"	3"	4"	5"	6"	7"	8"	9"	Proport.	1"	2"	3"	4"	5"	6"	7"	8"	9"
9	14	18	23	27	32	36	41	parts.	5	9	14	18	23	27	32	36	41

NATURAL CO-SINES IF RADIUS BE REJECTED.

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJ

Minutes	Versed Sine of 112 degrees, or Natural Sine of 22 degrees.						Minutes
	0'	10'	20'	30'	40'	50'	
0	1.374607	374652	374697	374741	374786	374831	59
1	374876	374921	374966	375011	375056	375101	58
2	375146	375191	375236	375281	375326	375371	57
3	375416	375461	375505	375550	375595	375640	56
4	375685	375730	375775	375820	375865	375910	55
5	375955	376000	376045	376090	376134	376179	54
6	376224	376269	376314	376359	376404	376449	53
7	376494	376539	376584	376629	376673	376718	52
8	376763	376808	376853	376898	376943	376988	51
9	377033	377078	377122	377167	377212	377257	50
10	1.377392	377347	377392	377437	377482	377527	49
11	377571	377616	377661	377706	377751	377796	48
12	377841	377886	377931	377975	378020	378065	47
13	378110	378155	378200	378245	378290	378334	46
14	378379	378424	378469	378514	378559	378604	45
15	378649	378693	378738	378783	378828	378873	44
16	378918	378963	379008	379052	379097	379142	43
17	379187	379232	379277	379322	379366	379411	42
18	379456	379501	379546	379591	379636	379680	41
19	379725	379770	379815	379860	379905	379950	40
20	1.379994	380039	380084	380129	380174	380219	39
21	380263	380308	380353	380398	380443	380488	38
22	380532	380577	380622	380667	380712	380757	37
23	380801	380846	380891	380936	380981	381026	36
24	381070	381115	381160	381205	381250	381294	35
25	381339	381384	381429	381474	381519	381563	34
26	381608	381653	381698	381743	381787	381832	33
27	381877	381922	381967	382011	382056	382101	32
28	382146	382191	382235	382280	382325	382370	31
29	382415	382459	382504	382549	382594	382639	30
30	1.382683	382728	382773	382818	382863	382907	29
31	382952	382997	383042	383087	383131	383176	28
32	383221	383266	383310	383355	383400	383445	27
33	383490	383534	383579	383624	383669	383713	26
34	383758	383803	383848	383892	383937	383982	25
35	384027	384072	384116	384161	384206	384251	24
36	384295	384340	384385	384430	384474	384519	23
37	384564	384609	384653	384698	384743	384788	22
38	384832	384877	384922	384967	385011	385056	21
39	385101	385146	385190	385235	385280	385325	20
40	1.385369	385414	385459	385503	385548	385593	19
41	385638	385682	385727	385772	385817	385861	18
42	385906	385951	385995	386040	386085	386130	17
43	386174	386219	386264	386309	386353	386398	16
44	386443	386487	386532	386577	386622	386666	15
45	386711	386756	386800	386845	386890	386934	14
46	386979	387024	387069	387113	387158	387203	13
47	387247	387292	387337	387382	387426	387471	12
48	387516	387560	387605	387650	387694	387739	11
49	387784	387828	387873	387918	387962	388007	10
50	1.388052	388097	388141	388186	388231	388275	9
51	388320	388365	388409	388454	388499	388543	8
52	388588	388633	388677	388722	388767	388811	7
53	388856	388901	388945	388990	389035	389079	6
54	389124	389169	389213	389258	389303	389347	5
55	389392	389436	389481	389526	389571	389615	4
56	389660	389704	389749	389794	389838	389883	3
57	389928	389972	390017	390062	390106	390151	2
58	390196	390240	390285	390329	390374	390419	1
59	390463	390508	390553	390597	390642	390687	0
Minutes	60'	50'	40'	30'	20'	10'	Minutes
Versed Sine Supplement of 67 degrees, or Natural Co-sine of 67 degrees.							
Proport.	1"	2"	3"	4"	5"	6"	7"
parts.	4	9	13	18	22	27	31

Minutes	Versed Sine of 113 degrees, or Natural Sine of 23 degrees.					Minutes
	0'	10'	20'	30'	40'	
0	1.390731	390776	390820	390865	390910	59
1	390999	391043	391088	391133	391177	58
2	391267	391311	391356	391400	391445	57
3	391534	391579	391623	391668	391713	56
4	391802	391847	391891	391936	391980	55
5	392070	392114	392159	392203	392248	54
6	392337	392382	392426	392471	392515	53
7	392605	392649	392694	392738	392783	52
8	392872	392917	392961	393006	393051	51
9	393140	393184	393229	393273	393318	50
10	1.393407	393452	393496	393541	393585	49
11	393675	393719	393764	393808	393853	48
12	393942	393986	394031	394076	394120	47
13	394209	394254	394298	394343	394387	46
14	394477	394521	394566	394610	394655	45
15	394744	394788	394833	394877	394922	44
16	395011	395056	395100	395145	395189	43
17	395278	395323	395367	395412	395456	42
18	395546	395590	395635	395679	395724	41
19	395813	395857	395902	395946	395991	40
20	1.396080	396124	396169	396213	396258	39
21	396347	396391	396436	396480	396525	38
22	396614	396658	396703	396747	396792	37
23	396881	396925	396970	397014	397059	36
24	397148	397192	397237	397281	397326	35
25	397415	397459	397504	397548	397593	34
26	397682	397726	397771	397815	397860	33
27	397949	397993	398038	398082	398127	32
28	398215	398260	398304	398349	398393	31
29	398482	398527	398571	398616	398660	30
30	1.398749	398794	398838	398882	398927	29
31	399010	399054	399099	399143	399188	28
32	399283	399327	399371	399416	399460	27
33	399549	399594	399638	399683	399727	26
34	399816	399860	399905	399949	399994	25
35	400082	400127	400171	400216	400260	24
36	400340	400385	400429	400474	400518	23
37	400616	400660	400704	400749	400793	22
38	400882	400926	400971	401015	401060	21
39	401149	401193	401237	401282	401326	20
40	1.401415	401459	401504	401548	401593	19
41	401681	401726	401770	401815	401859	18
42	401948	401992	402037	402081	402125	17
43	402214	402259	402303	402347	402392	16
44	402480	402525	402569	402614	402658	15
45	402747	402791	402835	402879	402924	14
46	403013	403057	403102	403146	403190	13
47	403279	403323	403368	403412	403457	12
48	403545	403590	403634	403678	403723	11
49	403811	403856	403900	403944	403989	10
50	1.404078	404122	404166	404211	404255	9
51	404344	404388	404432	404477	404521	8
52	404610	404654	404698	404743	404787	7
53	404876	404920	404964	405009	405053	6
54	405142	405186	405230	405275	405319	5
55	405408	405452	405496	405540	405585	4
56	405673	405718	405762	405806	405851	3
57	405939	405984	406028	406072	406116	2
58	406205	406249	406294	406338	406382	1
59	406471	406515	406559	406604	406648	0
Minutes	60'	50'	40'	30'	20'	Minutes
Versed Sine Supplement of 66 degrees, or Natural Co-sine of 66 degrees.						
Proport.	1"	2"	3"	4"	5"	6"
parts.	4	9	13	18	22	27

NATURAL CO-SINES IF RADIUS BE REJECTED.

Versed Sine of 114 degrees, or Natural Sine of 24 degrees.					Minutes	Versed Sine of 115 degrees, or Natural Sine of 25 degrees.					Minutes		
10"	20"	30"	40"	50"		0"	10"	20"	30"	40"	50"		
406781	406825	406870	406914	406958	59	1.	422618	422662	422706	422750	422794	422838	59
407047	407091	407135	407179	407224	58	2	422882	422926	422970	423014	423058	423102	58
407312	407357	407401	407445	407489	57	3	423145	423189	423233	423277	423321	423365	57
407578	407622	407667	407711	407755	56	4	423409	423453	423497	423541	423585	423629	56
407844	407888	407932	407976	408021	55	5	423673	423717	423761	423805	423849	423893	55
408109	408153	408197	408242	408286	54	6	423936	423980	424024	424068	424112	424156	54
408375	408419	408463	408507	408551	53	7	424199	424243	424287	424331	424375	424419	53
408640	408684	408729	408773	408817	52	8	424463	424507	424551	424595	424639	424683	52
408906	408950	408994	409038	409083	51	9	424726	424770	424814	424858	424902	424946	51
409171	409215	409260	409304	409348	50	10	424990	425033	425077	425121	425165	425209	50
409437	409481	409525	409569	409613	49	11	425253	425297	425341	425384	425428	425472	49
409702	409746	409790	409835	409879	48	12	425516	425560	425604	425648	425692	425735	48
409967	410011	410056	410100	410144	47	13	425779	425823	425867	425911	425955	425999	47
410231	410277	410321	410365	410409	46	14	426042	426086	426130	426174	426218	426262	46
410498	410542	410586	410630	410675	45	15	426306	426349	426393	426437	426481	426525	45
410763	410807	410851	410896	410940	44	16	426569	426613	426656	426700	426744	426788	44
411028	411072	411117	411161	411205	43	17	426832	426876	426920	426963	427007	427051	43
411293	411338	411382	411426	411470	42	18	427095	427139	427183	427226	427270	427314	42
411559	411603	411647	411691	411735	41	19	427358	427402	427446	427489	427533	427577	41
411824	411868	411912	411956	412000	40	20	427621	427665	427708	427752	427796	427840	40
412089	412133	412177	412221	412265	39	21	427884	427928	427971	428015	428059	428103	39
412544	412588	412632	412676	412720	38	22	428147	428191	428234	428278	428322	428366	38
412809	412853	412897	412941	412985	37	23	428410	428454	428497	428541	428585	428629	37
413074	413118	413162	413206	413250	36	24	428673	428717	428760	428804	428848	428892	36
413349	413393	413437	413481	413525	35	25	428936	428979	429023	429067	429110	429154	35
413614	413658	413702	413746	413790	34	26	429199	429242	429286	429329	429373	429417	34
413879	413923	413967	414011	414055	33	27	429462</						

NATURAL CO-SINES IF RADIUS BE REJECTED.

TABLE XXVII.

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECT

06

NATURAL VERSED SINES; OR

Versed Sine of 116 degrees, or
Natural Sine of 26 degrees.

Minutes	0'	10'	20'	30'	40'	50'	Minutes
0	1.438371	438415	438458	438502	438545	438589	59
1	438633	438676	438720	438763	438807	438850	58
2	438894	438938	438981	439025	439068	439112	57
3	439155	439199	439242	439286	439330	439373	56
4	439678	439721	439765	439809	439852	439896	55
5	439939	439983	440026	440070	440113	440157	54
6	440200	440244	440287	440331	440374	440418	53
7	440462	440505	440549	440592	440636	440679	52
8	440723	440766	440810	440853	440897	440940	51
9	1.440984	441027	441071	441114	441158	441201	50
10	441245	441288	441332	441375	441419	441462	49
11	441506	441549	441593	441636	441680	441723	48
12	441767	441810	441854	441897	441941	441984	47
13	442028	442071	442115	442158	442202	442245	46
14	442289	442332	442376	442419	442463	442506	45
15	442550	442593	442637	442680	442723	442767	44
16	442810	442854	442897	442941	442984	443028	43
17	443071	443115	443158	443202	443245	443288	42
18	443332	443375	443419	443462	443506	443549	41
19	443593	443636	443680	443723	443766	443810	40
20	443853	443897	443940	443984	444027	444071	39
21	444114	444157	444201	444244	444288	444331	38
22	444375	444418	444461	444505	444548	444592	37
23	444635	444679	444722	444765	444809	444852	36
24	444896	444939	444983	445026	445069	445113	35
25	445156	445200	445243	445286	445330	445373	34
26	445417	445460	445503	445547	445590	445634	33
27	445677	445720	445764	445807	445851	445894	32
28	445937	445981	446024	446068	446111	446154	31
29	1.446198	446241	446285	446328	446371	446415	30
30	446458	446502	446545	446588	446632	446675	29
31	446718	446762	446805	446849	446892	446935	28
32	446979	447022	447065	447109	447152	447195	27
33	447239	447282	447325	447369	447412	447455	26
34	447499	447542	447586	447629	447672	447716	25
35	447759	447802	447846	447889	447932	447976	24
36	448019	448063	448106	448149	448193	448236	23
37	448279	448323	448366	448409	448453	448496	22
38	448539	448583	448626	448669	448713	448756	21
39	1.448799	448843	448886	448929	448972	449016	20
40	449059	449102	449146	449189	449232	449276	19
41	449319	449362	449406	449449	449492	449536	18
42	449579	449622	449665	449709	449752	449795	17
43	449839	449882	449925	449969	450012	450055	16
44	450098	450142	450185	450228	450272	450315	15
45	450358	450401	450445	450488	450531	450575	14
46	450618	450661	450704	450748	450791	450834	13
47	450878	450921	450964	451007	451051	451094	12
48	451137	451180	451224	451267	451310	451353	11
49	1.451397	451440	451483	451527	451570	451613	10
50	451656	451700	451743	451786	451829	451873	9
51	451916	451959	452002	452046	452089	452132	8
52	452175	452219	452262	452305	452348	452391	7
53	452435	452478	452521	452564	452607	452651	6
54	452694	452737	452781	452824	452867	452910	5
55	452953	452997	453040	453083	453126	453170	4
56	453213	453256	453299	453342	453386	453429	3
57	453472	453515	453558	453602	453645	453688	2
58	453731	453775	453818	453861	453904	453947	1
59							0

Versed Sine Supplement of 63 degrees, or
Natural Co-sine of 63 degrees.

Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"
parts. { 4 9 13 17 22 26 30 35 39

NATURAL CO-SINES IF RADIUS BE

NATURAL CO-SINES IF RADIUS BE R

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 118 degrees, or Natural Sine of 28 degrees.							Minutes	
0'	10'	20'	30'	40'	50'			
1.469472	469514	469557	469600	469643	469686	59		
469728	469771	469814	469857	469900	469942	58		
469985	470028	470071	470114	470156	470199	57		
470242	470285	470327	470370	470413	470456	56		
470499	470541	470584	470627	470670	470712	55		
470755	470798	470841	470884	470926	470969	54		
471012	471055	471097	471140	471183	471226	53		
471268	471311	471354	471397	471439	471482	52		
471525	471568	471611	471653	471696	471739	51		
471782	471824	471867	471909	471952	471995	50		
1.472038	472081	472123	472166	472209	472252	49		
472294	472337	472380	472423	472465	472508	48		
472551	472593	472636	472679	472722	472764	47		
472807	472850	472893	472935	472978	473021	46		
473063	473106	473149	473192	473234	473277	45		
473320	473362	473405	473448	473490	473533	44		
473576	473619	473661	473704	473747	473789	43		
473832	473875	473917	473960	474003	474046	42		
474088	474131	474174	474216	474259	474302	41		
474344	474387	474430	474472	474515	474558	40		
1.474600	474643	474686	474728	474771	474814	39		
474856	474899	474942	474984	475027	475070	38		
475112	475155	475198	475240	475283	475326	37		
475368	475411	475454	475496	475539	475582	36		
475624	475667	475709	475752	475795	475837	35		
475880	475923	475965	476008	476051	476093	34		
476136	476179	476221	476264	476306	476349	33		
476392	476434	476477	476520	476562	476605	32		
476647	476690	476733	476775	476818	476860	31		
476903	476946	476988	477031	477074	477116	30		
1.477159	477201	477244	477287	477329	477372	29		
477414	477457	477500	477542	477585	477627	28		
477670	477713	477755	477798	477840	477883	27		
477925	477968	478011	478053	478096	478138	26		
478181	478224	478266	478309	478351	478394	25		
478436	478479	478522	478564	478607	478649	24		
478692	478734	478777	478820	478862	478905	23		
478947	478990	479032	479075	479117	479160	22		
479203	479245	479288	479330	479373	479415	21		
479458	479500	479543	479585	479628	479671	20		
1.479713	479756	479798	479841	479883	479926	19		
479968	480011	480053	480096	480138	480181	18		
480223	480266	480309	480351	480394	480436	17		
480479	480521	480564	480606	480649	480691	16		
480734	480776	480819	480861	480904	480946	15		
480989	481031	481074	481116	481159	481201	14		
481244	481286	481329	481371	481414	481456	13		
481499	481541	481584	481626	481669	481711	12		
481754	481796	481839	481881	481924	481966	11		
482009	482051	482094	482136	482178	482221	10		
1.482263	482306	482348	482391	482433	482476	9		
482518	482561	482603	482646	482688	482731	8		
482773	482815	482858	482900	482943	482985	7		
483028	483070	483113	483155	483197	483240	6		
483282	483325	483367	483410	483452	483495	5		
483537	483579	483622	483664	483707	483749	4		
483792	483834	483876	483919	483961	484004	3		
484046	484089	484131	484173	484216	484258	2		
484301	484343	484386	484428	484470	484513	1		
484555	484598	484640	484682	484725	484767	0		
60	50	40	30	20	10		Minutes	
Versed Sine Supplement of 61 degrees, or Natural Co-sine of 61 degrees.							Minutes	
propor. { 1"	2"	3"	4"	5"	6"	7"	8"	9"
parts. { 4	9	13	17	21	26	30	34	38

Versed Sine of 119 degrees, or Natural Sine of 29 degrees.							Minutes	
0'	10'	20'	30'	40'	50'			
1.484810	484852	484894	484937	484979	485022	59		
485064	485106	485149	485191	485234	485276	58		
485318	485361	485403	485446	485488	485530	57		
485573	485615	485657	485700	485742	485785	56		
485827	485869	485912	485954	485996	486039	55		
486081	486124	486166	486208	486251	486293	54		
486335	486378	486420	486462	486505	486547	53		
486590	486632	486674	486717	486759	486801	52		
486844	486886	486928	486971	487013	487055	51		
487098	487140	487182	487225	487267	487309	50		
1.487352	487394	487436	487479	487521	487563	49		
487606	487648	487690	487733	487775	487817	48		
487860	487902	487944	487987	488029	488071	47		
488114	488156	488198	488240	488283	488325	46		
488367	488410	488452	488494	488537	488579	45		
488621	488663	488706	488748	488790	488833	44		
488875	488917	488960	489002	489044	489086	43		
489129	489171	489213	489256	489298	489340	42		
489382	489425	489467	489509	489552	489594	41		
489636	489678	489721	489763	489805	489847	40		
1.489890	489932	489974	490017	490059	490101	39		
490143	490186	490228	490270	490312	490355	38		
490397	490439	490481	490524	490566	490608	37		
490650	490693	490735	490777	490819	490862	36		
490904	490946	490988	491030	491073	491115	35		
491157	491199	491242	491284	491326	491368	34		
491411	491453	491495	491537	491579	491622	33		
491664	491706	491748	491790	491833	491875	32		
491917	491959	492002	492044	492086	492128	31		
492170	492213	492255	492297	492339	492381	30		
1.492424	492466	492508	492550	492592	492635	29		
492677	492719	492761	492803	492845	492888	28		
492930	492972	493014	493056	493099	493141	27		
493183	493225	493267	493309	493352	493394	26		
493436	493478	493520	493562	493605	493647	25		
493689	493731	493773	493815	493858	493900	24		
493942	493984	494026	494068	494110	494153	23		
494195	494237	494279	494321	494363	494405	22		
494448	494490	494532	494574	494616	494658	21		
494700	494743	494785	494827	494869	494911	20		
1.494953	494995	495037	495080	495122	495164	19		
495206	495248	495290	495332	495374	495417	18		
495459	495501	495543	495585	495627	495669	17		
495711	495753	495796	495838	495880	495922	16		
495964	496006	496048	496090	496132	496174	15		
496217	496259	496301	496343	496385	496427	14		
496469	496511	496553	496595	496637	496679	13		
496722	496764	496806	496848	496890	496932	12		
496974	497016	497058	497100	497142	497184	11		
497226	497268	497310	497353	497395	497437	10		
1.497479	497521	497563	497605	497647	497689	9		
497731	497773	497815	497857	497899	497941	8		
497983	498025	498067	498109	498151	498194	7		
498236	498278	498320	498362	498404	498446	6		
498488	498530	498572	498614	498656	498698	5		
498740	498782	498824	498866	498908	498950	4		
498992	499034	499076	499118	499160	499202	3		
499244	499286	499328	499370	499412	499454	2		
499496	499538	499580	499622	499664	499706	1		
499748	499790	499832	499874	499916	499958	0		
60	50	40	30	20	10		Minutes	
Versed Sine Supplement of 60 degrees, or Natural Co-sine of 60 degrees.							Minutes	
propor. { 1"	2"	3"	4"	5"	6"	7"	8"	9"
parts. { 4	8	13	17	21	25	29	34	38

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Minutes	Versed Sine of 120 degrees, or Natural Sine of 30 degrees.						Minutes
	0°	10°	20°	30°	40°	50°	
0	1.500000	500042	500084	500126	500168	500210	59
1	500252	500294	500336	500378	500420	500462	58
2	500504	500546	500588	500630	500672	500714	57
3	500756	500798	500839	500881	500923	500965	56
4	501007	501049	501091	501133	501175	501217	55
5	501259	501301	501343	501385	501427	501469	54
6	501511	501553	501595	501637	501679	501720	53
7	501762	501804	501846	501888	501930	501972	52
8	502014	502056	502098	502140	502182	502224	51
9	502266	502307	502349	502391	502433	502475	50
10	1.502517	502559	502601	502643	502685	502727	49
11	502769	502810	502852	502894	502936	502978	48
12	503020	503062	503104	503146	503188	503229	47
13	503271	503313	503355	503397	503439	503481	46
14	503523	503565	503606	503648	503690	503732	45
15	503774	503816	503858	503900	503941	503983	44
16	504025	504067	504109	504151	504193	504235	43
17	504276	504318	504360	504402	504444	504486	42
18	504528	504569	504611	504653	504695	504737	41
19	504779	504821	504862	504904	504946	504988	40
20	1.505030	505072	505114	505155	505197	505239	39
21	505281	505323	505365	505406	505448	505490	38
22	505532	505574	505616	505657	505699	505741	37
23	505783	505825	505866	505908	505950	505992	36
24	506034	506076	506117	506159	506201	506243	35
25	506285	506326	506368	506410	506452	506494	34
26	506535	506577	506619	506661	506703	506744	33
27	506786	506828	506870	506912	506953	506995	32
28	507037	507079	507121	507162	507204	507246	31
29	507288	507329	507371	507413	507455	507497	30
30	1.507538	507580	507622	507664	507705	507747	29
31	507789	507831	507872	507914	507956	507998	28
32	508040	508081	508123	508165	508207	508248	27
33	508290	508332	508374	508415	508457	508499	26
34	508541	508582	508624	508666	508708	508749	25
35	508791	508833	508874	508916	508958	509000	24
36	509041	509083	509125	509167	509208	509250	23
37	509292	509333	509375	509417	509459	509500	22
38	509542	509584	509626	509667	509709	509751	21
39	509792	509834	509876	509917	509959	510001	20
40	1.510043	510084	510126	510168	510209	510251	19
41	510293	510335	510376	510418	510460	510501	18
42	510543	510585	510626	510668	510710	510751	17
43	510793	510835	510876	510918	510960	511001	16
44	511043	511085	511126	511168	511210	511251	15
45	511293	511335	511376	511418	511460	511501	14
46	511543	511585	511626	511668	511710	511751	13
47	511793	511835	511876	511918	511960	512001	12
48	512043	512085	512126	512168	512209	512251	11
49	512293	512335	512376	512418	512459	512501	10
50	1.512543	512584	512626	512667	512709	512751	9
51	512792	512834	512875	512917	512958	513000	8
52	513042	513084	513125	513167	513208	513250	7
53	513292	513333	513375	513416	513458	513500	6
54	513541	513583	513624	513666	513708	513749	5
55	513791	513832	513874	513916	513957	513999	4
56	514040	514082	514124	514165	514207	514248	3
57	514290	514331	514373	514415	514456	514498	2
58	514539	514581	514622	514664	514706	514747	1
59	514789	514830	514872	514913	514955	514997	0
Minutes	Versed Sine Supplement of 59 degrees, or Natural Co-sine of 59 degrees.						Minutes
	60°	50°	40°	30°	20°	10°	
Proport.	1"	2"	3"	4"	5"	6"	7"
parts.	4	8	13	17	21	25	29
							34
							38

Minutes	Versed Sine of 121 degrees, or Natural Sine of 31 degrees.						Minutes
	0°	10°	20°	30°	40°	50°	
0	1.515038	515080	515121	515163	515204	515246	59
1	515287	515329	515370	515412	515454	515495	58
2	515537	515578	515620	515661	515703	515744	57
3	515786	515827	515869	515910	515952	515994	56
4	516035	516077	516118	516160	516201	516243	55
5	516284	516326	516367	516409	516450	516492	54
6	516533	516575	516616	516658	516699	516741	53
7	516782	516824	516865	516907	516948	516990	52
8	517031	517073	517114	517156	517197	517239	51
9	517280	517322	517363	517405	517446	517488	50
10	1.517529	517571	517612	517654	517695	517737	49
11	517778	517820	517861	517903	517944	517986	48
12	518027	518068	518110	518151	518193	518234	47
13	518276	518317	518359	518400	518442	518483	46
14	518525	518566	518607	518649	518690	518732	45
15	518773	518815	518856	518898	518939	518980	44
16	519022	519063	519105	519146	519188	519229	43
17	519271	519312	519353	519395	519436	519478	42
18	519519	519561	519602	519643	519685	519726	41
19	519768	519809	519850	519892	519933	519975	40
20	1.520016	520058	520099	520140	520182	520223	39
21	520265	520306	520347	520389	520430	520472	38
22	520513	520554	520596	520637	520679	520720	37
23	520761	520803	520844	520885	520927	520968	36
24	521010	521051	521092	521134	521175	521217	35
25	521258	521299	521341	521382	521423	521465	34
26	521506	521547	521589	521630	521672	521713	33
27	521754	521796	521837	521878	521920	521961	32
28	522002	522044	522085	522126	522168	522209	31
29	522251	522292	522333	522375	522416	522457	30
30	1.522499	522540	522581	522623	522664	522705	29
31	522747	522788	522829	522871	522912	522953	28
32	522995	523036	523077	523118	523160	523201	27
33	523242	523284	523325	523366	523408	523449	26
34	523490	523532	523573	523614	523656	523697	25
35	523738	523779	523821	523862	523903	523945	24
36	523986	524027	524068	524110	524151	524192	23
37	524234	524275	524316	524357	524399	524440	22
38	524481	524523	524564	524605	524646	524688	21
39	524729	524770	524812	524853	524894	524935	20
40	1.524977	525018	525059	525100	525142	525183	19
41	525224	525265	525307	525348	525389	525430	18
42	525472	525513	525554	525595	525637	525678	17
43	525719	525760	525802	525843	525884	525925	16
44	525967	526008	526049	526090	526131	526173	15
45	526214	526255	526296	526338	526379	526420	14
46	526461	526502	526544	526585	526626	526667	13
47	526709	526750	526791	526832	526873	526915	12
48	526956	526997	527038	527079	527121	527162	11
49	527203	527244	527285	527327	527368	527409	10
50	1.527450	527491	527533	527574	527615	527656	9
51	527697	527738	527780	527821	527862	527903	8
52	527944	527986	528027	528068	528109	528150	7
53	528191	528233	528274	528315	528356	528397	6
54	528438	528479	528521	528562	528603	528644	5
55	528685	528726	528768	528809	528850	528891	4
56	528932	528973	529014	529056	529097	529138	3
57	529179	529220	529261	529302	529344	529385	2
58	529426	529467	529508	529549	529590	529631	1
59	529673	529714	529755	529796	529837	529878	0
Minutes	Versed Sine Supplement of 58 degrees, or Natural Co-sine of 58 degrees.						Minutes
	60°	50°	40°	30°	20°	10°	
Proport.	1"	2"	3"	4"	5"	6"	7"
parts.	4	8	12	17	21	25	29
							33
							37

NATURAL CO-SINES IF RADIUS BE REJECTED.

61

ERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Sine of 122 degrees, or al Sine of 32 degrees.					Minutes	Versed Sine of 123 degrees, or Natural Sine of 33 degrees.					Minutes				
°	20'	30'	40'	50'		°	10'	20'	30'	40'	50'				
60	530001	530043	530084	530125	59	1	544639	544680	544720	544761	544802	544842	59		
07	530248	530289	530330	530371	58	2	544883	544924	544964	545005	545046	545086	58		
54	530495	530536	530577	530618	57	3	545127	545168	545208	545249	545289	545330	57		
00	530741	530782	530823	530865	56	4	545371	545411	545452	545493	545533	545574	56		
47	530988	531029	531070	531111	55	5	545615	545655	545696	545736	545777	545818	55		
93	531234	531275	531316	531358	54	6	545859	545899	545939	545980	546021	546062	54		
40	531481	531522	531563	531604	53	7	546102	546143	546183	546224	546264	546305	53		
86	531727	531768	531809	531850	52	8	546346	546386	546427	546467	546508	546549	52		
32	531973	532014	532055	532097	51	9	546589	546630	546670	546711	546752	546792	51		
79	532220	532261	532302	532343	50	10	546833	546873	546914	546955	546995	547036	50		
25	532466	532507	532548	532589	49	1	547076	547117	547157	547198	547239	547279	49		
11	532712	532753	532794	532835	48	11	547320	547360	547401	547442	547482	547523	48		
17	532958	532999	533040	533081	47	12	547563	547604	547644	547685	547725	547766	47		
63	533204	533245	533286	533327	46	13	547807	547847	547888	547928	547969	548009	46		
09	533450	533491	533533	533574	45	14	548050	548090	548131	548172	548212	548253	45		
56	533697	533738	533779	533820	44	15	548293	548334	548374	548415	548455	548496	44		
01	533943	533983	534024	534065	43	16	548536	548577	548618	548658	548699	548739	43		
47	534188	534229	534270	534311	42	17	548780	548820	548861	548901	548942	548982	42		
93	534434	534475	534516	534557	41	18	549023	549063	549104	549144	549185	549225	41		
39	534680	534721	534762	534803	40	19	549266	549306	549347	549387	549428	549468	40		
85	534926	534967	535008	535049	39	20	549509	549549	549590	549630	549671	549711	39		
31	535172	535213	535254	535295	38	21	549752	549792	549833	549873	549914	549954	38		
76	535417	535458	535499	535540	37	22	549995	550035	550076	550116	550157	550197	37		
22	535663	535704	535745	535786	36	23	550238	550278	550319	550359	550400	550440	36		
68	535909	535950	535991	536031	35	24	550481	550521	550562	550602	550643	550683	35		
13	536154	536195	536236	536277	34	25	550724	550764	550804	550845	550885	550926	34		
59	536400	536441	536482	536522	33	26	550967	551007	551047	551088	551128	551169	33		
24	536646	536686	536727	536768	32	27	551209	551250	551290	551330	551371	551411	32		
50	536891	536932	536972	537013	31	28	551452	551492	551533	551573	551614	551654	31		
35	537136	537177	537218	537259	30	29	551694	551735	551775	551816	551856	551897	30		
00	537381	537422	537463	537504	29	30	551937	551977	552018	552058	552099	552139	29		
36	537627	537668	537708	537749	28	31	552180	552220	552260	552300	552341	552382	28		
31	537872	537913	537954	537995	27	32	552422	552462	552503	552543	552584	552624	27		
16	538117	538158	538199	538240	26	33	552664	552705	552745	552786	552826	552866	26		
11	538362	538403	538444	538485	25	34	552907	552947	552988	553028	553068	553109	25		
7	538607	538648	538689	538730	24	35	553149	553190	553230	553270	553311	553351	24		
12	538852	538893	538934	538975	23	36	553392	553432	553472	553513	553553	553593	23		
17	539097	539138	539179	539220	22	37	553634	553674	553715	553755	553795	553836	22		
22	539342	539383	539424	539465	21	38	553876	553916	553957	553997	554037	554078	21		
17	539587	539628	539669	539710	20	39	554118	554159	554199	554239	554280	554320	20		
11	539832	539873	539914	539955	19	40	554360	554401	554441	554481	554522	554562	19		
16	540077	540118	540159	540200	18	1	554602	554643	554683	554723	554764	554804	18		
11	540322	540363	540404	540444	17	2	554844	554885	554925	554965	555006	555046	17		
16	540567	540607	540648	540689	16	3	555086	555127	555167	555207	555248	555288	16		
11	540811	540852	540893	540934	15	4	555328	555369	555409	555449	555490	555530	15		
16	541056	541097	541138	541178	14	5	555570	555611	555651	555691	555731	555772	14		
11	541301	541341	541382	541423	13	6	555812	555852	555893	555933	555973	556014	13		
16	541545	541586	541627	541667	12	7	556054	556094	556134	556175	556215	556255	12		
11	541790	541830	541871	541912	11	8	556296	556336	556376	556416	556457	556497	11		
16	542034	542075	542116	542156	10	9	556537	556578	556618	556658	556698	556739	10		
11	542279	542319	542360	542401	9	10	556779	556819	556860	556900	556940	556980	9		
16	542523	542564	542604	542645	8	11	557021	557061	557101	557141	557182	557222	8		
11	542767	542808	542849	542889	7	12	557262	557302	557343	557383	557423	557463	7		
16	543012	543052	543093	543134	6	13	557504	557544	557584	557624	557665	557705	6		
11	543256	543297	543337	543378	5	14	557745	557785	557826	557866	557906	557946	5		
16	543500	543541	543581	543622	4	15	557987	558027	558067	558107	558147	558188	4		
11	543744	543785	543826	543866	3	16	558228	558268	558308	558349	558389	558429	3		
16	543988	544029	544070	544110	2	17	558469	558509	558550	558590	558630	558670	2		
11	544232	544273	544314	544354	1	18	558710	558751	558791	558831	558871	558912	1		
16	544476	544517	544558	544598	0	19	558952	558992	559032	559072	559113	559153	0		
40' 30' 20' 10'					Minutes	60' 50' 40' 30' 20' 10'					Minutes				
Supplement of 57 degrees, or Co-sine of 57 degrees.					Minutes	Versed Sine Supplement of 56 degrees, or Natural Co-sine of 56 degrees.					Minutes				
°	3'	4'	5'	6'	7'	8'	9'	°	3'	4'	5'	6'	7'	8'	9'
12	16	20	25	29	33	37		12	16	20	24	28	32	36	
Propor. { 1" 2" 3" 4" 5" 6" 7" 8" 9"								parts. { 4 8 12 16 20 24 28 32 36							

NATURAL CO-SINES IF RADIUS BE REJECTED.

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJ

Minutes		Versed Sine of 124 degrees, or Natural Sine of 34 degrees.						Minutes		Minutes		Versed Sine of 125 degrees, or Natural Sine of 35 degrees.						Minutes		Minutes		Versed Sine Supplement of 55 degrees, or Natural Co-sine of 55 degrees.						Minutes		Minutes		Versed Sine Supplement of 54 degree Natural Co-sine of 54 degrees.							
		0'	10'	20'	30'	40'	50'					0'	10'	20'	30'	40'	0'					10'	20'	30'	40'	0'	10'					20'	30'	40'					
0	1	559193	559233	559273	559313	559354	559394	59	0	1	573576	573616	573656	573696	573735	59	0	1	573576	573616	573656	573696	573735	59	0	1	584229	584269	584308	584348	584387	59	0	1	584229	584269	584308	584348	584387
1	2	559434	559474	559514	559555	559595	559635	58	1	2	573815	573854	573894	573934	573974	58	1	2	573815	573854	573894	573934	573974	58	1	2	584469	584509	584548	584588	584627	58	1	2	584469	584509	584548	584588	584627
2	3	559675	559715	559755	559796	559836	559876	57	2	3	574053	574093	574132	574172	574212	57	2	3	574053	574093	574132	574172	574212	57	2	3	584709	584749	584788	584828	584867	57	2	3	584709	584749	584788	584828	584867
3	4	559916	559956	559996	560037	560077	560117	56	3	4	574291	574331	574371	574410	574450	56	3	4	574291	574331	574371	574410	574450	56	3	4	584949	584989	585028	585068	585107	56	3	4	584949	584989	585028	585068	585107
4	5	560157	560197	560237	560278	560318	560358	55	4	5	574529	574569	574608	574648	574688	55	4	5	574529	574569	574608	574648	574688	55	4	5	585189	585229	585268	585308	585347	55	4	5	585189	585229	585268	585308	585347
5	6	560398	560438	560478	560519	560559	560599	54	5	6	574767	574807	574847	574887	574926	54	5	6	574767	574807	574847	574887	574926	54	5	6	585429	585469	585508	585548	585587	54	5	6	585429	585469	585508	585548	585587
6	7	560639	560679	560719	560759	560800	560840	53	6	7	575003	575043	575083	575123	575163	53	6	7	575003	575043	575083	575123	575163	53	6	7	585669	585709	585748	585788	585827	53	6	7	585669	585709	585748	585788	585827
7	8	560880	560920	560960	561000	561040	561081	52	7	8	575243	575283	575323	575363	575403	52	7	8	575243	575283	575323	575363	575403	52	7	8	585909	585949	585988	586028	586067	52	7	8	585909	585949	585988	586028	586067
8	9	561121	561161	561201	561241	561281	561321	51	8	9	575481	575521	575561	575601	575641	51	8	9	575481	575521	575561	575601	575641	51	8	9	586149	586189	586228	586268	586307	51	8	9	586149	586189	586228	586268	586307
9	10	561361	561402	561442	561482	561522	561562	50	9	10	575719	575759	575799	575839	575879	50	9	10	575719	575759	575799	575839	575879	50	9	10	586389	586429	586468	586508	586547	50	9	10	586389	586429	586468	586508	586547
10	11	561602	561642	561682	561722	561763	561803	49	10	11	575957	575997	576036	576076	576115	49	10	11	575957	575997	576036	576076	576115	49	10	11	586629	586669	586708	586748	586787	49	10	11	586629	586669	586708	586748	586787
11	12	561843	561883	561923	561963	562003	562043	48	11	12	576195	576234	576274	576313	576353	48	11	12	576195	576234	576274	576313	576353	48	11	12	586869	586909	586948	586988	587027	48	11	12	586869	586909	586948	586988	587027
12	13	562083	562123	562164	562204	562244	562284	47	12	13	576432	576472	576512	576551	576591	47	12	13	576432	576472	576512	576551	576591	47	12	13	587109	587149	587188	587228	587267	47	12	13	587109	587149	587188	587228	587267
13	14	562324	562364	562404	562444	562484	562524	46	13	14	576670	576710	576750	576789	576829	46	13	14	576670	576710	576750	576789	576829	46	13	14	587349	587389	587428	587468	587507	46	13	14	587349	587389	587428	587468	587507
14	15	562564	562604	562645	562685	562725	562765	45	14	15	576908	576948	576988	577027	577067	45	14	15	576908	576948	576988	577027	577067	45	14	15	587589	587629	587668	587708	587747	45	14	15	587589	587629	587668	587708	587747
15	16	562805	562845	562885	562925	562965	563005	44	15	16	577145	577185	577224	577264	577303	44	15	16	577145	577185	577224	577264	577303	44	15	16	587829	587869	587908	587948	587987	44	15	16	587829	587869	587908	587948	587987
16	17	563045	563085	563125	563166	563206	563246	43	16	17	577383	577423	577462	577502	577541	43	16	17	577383	577423	577462	577502	577541	43	16	17	588069	588109	588148	588188	588227	43	16	17	588069	588109	588148	588188	588227
17	18	563286	563326	563366	563406	563446	563486	42	17	18	577620	577660	577699	577739	577778	42	17	18	577620	577660	577699	577739	577778	42	17	18	588309	588349	588388	588428	588467	42	17	18	588309	588349	588388	588428	588467
18	19	563526	563566	563606	563646	563686	563726	41	18	19	577858	577897	577937	577976	578016	41	18	19	577858	577897	577937	577976	578016	41	18	19	588549	588589	588628	588668	588707	41	18	19	588549	588589	588628	588668	588707
19	20	563766	563806	563846	563886	563926	563967	40	19	20	578095	578135	578174	578214	578253	40	19	20	578095	578135	578174	578214	578253	40	19	20	588789	588829	588868	588908	588947	40	19	20	588789	588829	588868	588908	588947
20	21	564007	564047	564087	564127	564167	564207	39	20	21	578332	578372	578411	578451	578490	39	20	21	578332	578372	578411	578451	578490	39	20	21	589029	589069	589108	589148	589187	39	20	21	589029	589069	589108	589148	589187
21	22	564247	564287	564327	564367	564407	564447	38	21	22	578570	578610	578649	578689	578728	38	21	22	578570	578610	578649	578689	578728	38	21	22	589269	589309	589348	589388	589427	38	21	22	589269	589309	589348	589388	589427
22	23	564487	564527	564567	564607	564647	564687	37	22	23	578807	578847	578886	578925	578965	37	22	23	578807	578847	578886	578925	578965	37	22	23	589509	589549	589588	589628	589667	37	22	23	589509	589549	589588	589628	589667
23	24	564727	564767	564807	564847	564887	564927	36	23	24	579044	579084	579123	579163	579202	36	23	24	579044	579084	579123	579163	579202	36	23	24	589749	589789	589828	589868	589907	36	23	24	589749	589789	589828	589868	589907
24	25	564967	565007	565047	565087	565127	565167	35	24	25	579281	579321	579360	579400	579439	35	24	25	579281	579321	579360	579400	579439	35	24	25	590089	590129	590168	590208	590247	35	24	25	590089	590129	590168	590208	590247
25	26	565207	565247	565287	565327	565367	565407	34	25	26	579518	579558	579597	579637	579676	34	25	26	579518	579558	579597	579637	579676	34	25	26	590329	590369	590408	590448	590487	34	25	26	590329	590369	590408	590448	590487
26	27	565447	565487	565527	565567	565607	565647	33	26	27	579755	579795	579834	579874	579913	33	26	27	579755	579795	579834	579874	579913	33	26	27	590569	590609	590648	590688	590727	33	26	27	590569	590609	590648	590688	590727
27	28	565687	565727	565767	565807	565847	565887	32	27	28	579992	580032	580071	580111	580150	32	27	28	579992	580032	580071	580111	580150	32	27	28	590809	590849	590888	590928	590967	32	27	28	590809	590849	590888	590928	590967
28	29	565927	565967	566007	566047	566087	566127	31	28	29	580230	580269	580308	580348	580387	31	28	29	580230	580269	580308	580348	580387	31	28	29	591049	591089	591128	591168	591207	31	28	29	591049	591089	59111		

TABLE XXVII.

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RAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 126 degrees, or Natural Sine of 36 degrees.						Minutes
1'	10'	20'	30'	40'	50'	
7785	587824	587864	587903	587942	587981	59
8021	588060	588099	588138	588177	588217	58
8256	588295	588334	588373	588413	588452	57
8491	588530	588569	588609	588648	588687	56
8726	588765	588805	588844	588883	588922	55
8961	589000	589040	589079	589118	589157	54
9196	589236	589275	589314	589353	589392	53
9431	589471	589510	589549	589588	589627	52
9666	589705	589745	589784	589823	589862	51
9901	589940	589980	590019	590058	590097	50
10136	590175	590214	590254	590293	590332	49
10371	590410	590449	590488	590527	590567	48
10606	590645	590684	590723	590762	590801	47
10840	590879	590919	590958	590997	591036	46
11075	591114	591153	591192	591231	591271	45
11310	591349	591388	591427	591466	591505	44
11544	591583	591622	591661	591701	591740	43
11779	591818	591857	591896	591935	591974	42
12013	592052	592091	592130	592169	592209	41
12248	592287	592326	592365	592404	592443	40
12482	592521	592560	592599	592638	592677	39
12716	592755	592794	592833	592872	592911	38
12951	592990	593029	593068	593107	593146	37
13185	593224	593263	593302	593341	593380	36
13419	593458	593497	593536	593575	593614	35
13653	593692	593731	593770	593809	593848	34
13888	593926	593965	594004	594043	594082	33
14121	594160	594199	594238	594277	594316	32
14355	594394	594433	594472	594511	594550	31
14589	594628	594667	594706	594745	594784	30
14823	594862	594901	594940	594979	595018	29
15057	595096	595135	595173	595212	595251	28
15290	595329	595368	595407	595446	595485	27
15524	595563	595602	595641	595680	595719	26
15758	595797	595836	595875	595914	595952	25
15991	596030	596069	596108	596147	596186	24
16225	596264	596303	596342	596381	596419	23
16458	596497	596536	596575	596614	596653	22
16692	596731	596770	596809	596848	596886	21
16925	596964	597003	597042	597081	597120	20
17159	597197	597236	597275	597314	597353	19
17392	597431	597470	597509	597547	597586	18
17625	597664	597703	597742	597781	597819	17
17858	597897	597936	597975	598014	598053	16
18092	598130	598169	598208	598247	598286	15
18325	598363	598402	598441	598480	598519	14
18558	598596	598635	598674	598713	598752	13
18791	598829	598868	598907	598946	598985	12
19024	599062	599101	599140	599179	599218	11
19257	599295	599334	599373	599412	599451	10
19490	599528	599567	599606	599645	599683	9
19723	599761	599800	599839	599877	599916	8
19955	599994	600032	600071	600110	600149	7
20188	600226	600265	600304	600343	600381	6
20420	600459	600498	600537	600575	600614	5
20653	600692	600730	600769	600808	600847	4
20885	600924	600963	601002	601040	601079	3
21118	601157	601195	601234	601273	601312	2
21350	601389	601428	601466	601505	601544	1
21583	601621	601660	601699	601738	601776	0
0'	50'	40'	30'	20'	10'	Minutes
Versed Sine Supplement of 53 degrees, or Natural Co-sine of 53 degrees.						
1	1"	2"	3"	4"	5"	9"
2	4	8	12	16	19	23
3	27	31	35			
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60						
Versed Sine Supplement of 52 degrees, or Natural Co-sine of 52 degrees.						Minutes
0'	50'	40'	30'	20'	10'	
1	1"	2"	3"	4"	5"	9"
2	4	8	12	16	19	23
3	27	31	35			
4						
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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJE

Minutes							Minutes							Minutes							Minutes						
Versed Sine of 128 degrees, or Natural Sine of 38 degrees.							Versed Sine of 129 degrees, or Natural Sine of 39 degrees.							Versed Sine of 130 degrees, or Natural Sine of 40 degrees.							Versed Sine Supplement of 51 degrees, or Natural Co-sine of 51 degrees.						
0" 10" 20" 30" 40" 50"							0" 10" 20" 30" 40"							0" 10" 20" 30" 40"							60" 50" 40" 30" 20" 10"						
1. 615661 615700 615738 615776 615814 615852							1. 629320 629358 629396 629433 629471 629509							1. 643578 643616 643654 643691 643729 643767							Proport. 1" 2" 3" 4" 5" 6" 7" 8" 9"						
615891 615929 615967 616005 616043 616082							629546 629584 629622 629659 629697 629736							643804 643841 643879 643916 643954 643992							parts. 4 8 11 15 19 23 27 30 34						
616120 616158 616196 616234 616273 616311							629772 629810 629848 629885 629923 629961							644020 644058 644096 644134 644172 644210													
616349 616387 616425 616463 616502 616540							629998 630036 630074 630111 630149 630187							644226 644264 644301 644338 644376 644414													
616578 616616 616654 616692 616731 616769							630224 630262 630299 630337 630375 630413							644450 644488 644525 644563 644601 644639													
616807 616845 616883 616921 616960 616998							630450 630488 630525 630563 630601 630639							644673 644710 644747 644784 644821 644859													
617036 617074 617112 617150 617188 617227							630676 630713 630751 630789 630826 630864							644896 644933 644970 645007 645045 645083													
617265 617303 617341 617379 617417 617455							630902 630939 630977 631014 631052 631090							645119 645156 645193 645230 645268 645306													
617494 617532 617570 617608 617646 617684							631127 631165 631202 631240 631278 631316							645342 645379 645416 645453 645491 645529													
617722 617760 617799 617837 617875 617913							631353 631390 631428 631466 631503 631541							645565 645602 645639 645677 645714 645752													
1. 617951 617989 618027 618065 618104 618142							1. 631578 631616 631654 631691 631729 631767							1. 645778 645816 645854 645892 645930 645968													
618180 618218 618256 618294 618332 618370							631804 631841 631879 631916 631954 631992							645991 646029 646067 646104 646142 646180													
618408 618446 618485 618523 618561 618599							632029 632067 632104 632142 632180 632218							646193 646231 646269 646307 646345 646383													
618637 618675 618713 618751 618789 618827							632255 632292 632330 632367 632405 632443							646396 646434 646472 646510 646548 646586													
618865 618904 618942 618980 619018 619056							632480 632518 632555 632593 632630 632668							646599 646637 646675 646713 646751 646789													
619094 619132 619170 619208 619246 619284							632705 632743 632780 632818 632856 632894							646792 646830 646868 646906 646944 646982													
619322 619361 619399 619437 619475 619513							632931 632968 633006 633043 633081 633119							646985 647023 647061 647099 647137 647175													
619551 619589 619627 619665 619703 619741							633156 633193 633231 633268 633306 633344							647178 647216 647254 647292 647330 647368													
619779 619817 619855 619893 619931 619969							633381 633418 633456 633493 633531 633569							647371 647409 647447 647485 647523 647561													
620007 620045 620083 620121 620159 620197							633606 633643 633681 633718 633756 633794							647564 647602 647640 647678 647716 647754													
1. 620235 620274 620312 620350 620388 620426							1. 633831 633868 633905 633943 633981 634019							1. 647757 647795 647833 647871 647909 647947													
620464 620502 620540 620578 620616 620654							634056 634093 634131 634168 634206 634244							647950 647988 648026 648064 648102 648140													
620692 620730 620768 620806 620844 620882							634281 634318 634356 634393 634431 634469							648143 648181 648219 648257 648295 648333													
620920 620958 620996 621034 621072 621110							634506 634543 634581 634618 634656 634694							648336 648374 648412 648450 648488 648526													
621148 621186 621224 621262 621300 621338							634731 634768 634805 634843 634880 634918							648529 648567 648605 648643 648681 648719													
621376 621414 621452 621490 621528 621566							634955 634993 635030 635068 635105 635143							648722 648760 648798 648836 648874 648912													
621604 621642 621680 621718 621756 621793							635180 635217 635255 635292 635330 635368							648915 648953 648991 649029 649067 649105													
621831 621869 621907 621945 621983 622021							635405 635442 635479 635517 635554 635592							649108 649146 649184 649222 649260 649298													
622059 622097 622135 622173 622211 622249							635629 635667 635704 635741 635779 635817							649291 649329 649367 649405 649443 649481													
622287 622325 622363 622401 622439 622477							635854 635891 635929 635966 636003 636041							649484 649522 649560 649598 649636 649674													
1. 622515 622553 622591 622628 622666 622704							1. 636078 636116 636153 636190 636228 636266							1. 649677 649715 649753 649791 649829 649867													
622742 622780 622818 622856 622894 622932							636303 636340 636377 636415 636452 636490							649870 649908 649946 649984 650022 650060													
622970 623008 623046 623084 623122 623159							636527 636564 636602 636639 636677 636715							650063 650101 650139 650177 650215 650253													
623197 623235 623273 623311 623349 623387							636751 636789 636826 636863 636901 636939							650256 650294 650332 650370 650408 650446													
623425 623463 623501 623539 623577 623614							636976 637013 637050 637088 637125 637163							650449 650487 650525 650563 650601 650639													
623652 623690 623728 623766 623804 623842							637200 637237 637275 637312 637349 637387							650642 650680 650718 650756 650794 650832													
623880 623917 623955 623993 624031 624069							637424 637461 637499 637536 637573 637611							650835 650873 650911 650949 650987 651025													
624107 624145 624183 624221 624258 624296							637648 637685 637723 637760 637797 637835							651028 651066 651104 651142 651180 651218													
624334 624372 624410 624448 624486 624524							637872 637909 637947 637984 638021 638059							651221 651259 651297 651335 651373 651411													
624561 624599 624637 624675 624713 624751							638096 638133 638171 638208 638245 638283							651414 651452 651490 651528 651566 651604													
1. 624789 624826 624864 624902 624940 624978							1. 638320 638357 638395 638433 638471 638509							1. 651607 651645 651683 651721 651759 651797													
625016 625053 625091 625129 625167 625205							638544 638581 638619 638656 638694 638732							651790 651828 651866 651904 651942 651980													
625243 625280 625318 625356 625394 625432							638768 638805 638842 638880 638917 638955							651983 652021 652059 652097 652135 652173													
625470 625507 625545 625583 625621 625659							638992 639029 639066 639103 639141 639179							652176 652214 652252 652290 652328 652366													
625697 625734 625772 625810 625848 625886							639215 639253 639290 639327 639365 639403							652369 652407 652445 652483 652521 652559													
625923 625961 625999 626037 626075 626113							639439 639476 639514 639551 639589 639627							652562 652600 652638 652676 652714 652752													
626150 626188 626226 626264 626301 626339							639663 639700 639737 639775 639812 639850							652755 652793 652831 652869 652907 652945													
626377 626415 626453 626490 626528 626566							639886 639923 639961 639998 640035 640073							652948 652986 653024 653062 653100 653138													
626604 626642 626679 626717 626755 626793							640110 640147 640184 640221 640259 640297							653141 653179 653217 653255 653293 653331													
626830 626868 626906 626944 626982 627019							640333 640370 640408 640445 640483 640521							653334 653372 653410 653448 653486 653524													
1. 627057 627095 627133 627170 627208 627246							1. 640557 640594 640631 640668 640705 640743							1. 653527 653565 653603 653641 653679 653717													
627284 627321 627359 627397 627435 627472							640780 640817 640854 640892 640929 640967							653720 653758 653796 653834 653872 653910													
627510 627548 627586 627623 627661 627699							640991 641029 641067 641104 641142 641180							653913 653951 653989 654027 654065 654103													
627737 627774 627812 627850 627888 627925							641226 641264 641301 641338 641376 641414							654106 654144 654182 654220 654258 654296													
627963 628001 628039 628076 628114 628152							641450 641487 641524 641561 641599 641637							654299 654337 654375 654413 654451 654489													
628189 628227 628265 628303 628340 628378							641673 641710 641747 641784 641821 641859							654492 654530 654568 654606 654644 654682													
628416 628453 628491 628529 628567 628604							641896 641933 641970 642007 642045 642083							654685 654723 654761 654799 654837 654875													
628642 628680 628717 628755 628793 628830							642119 642156 642193 642230 642268 642306							654878 654916 654954 654992 655030 655068													
628868 628906 628944 628982 629019 629056							642342 642379 642416 642453 642491 642529							655071 655109 655147 655185 655223 655261													
629094 629132 629170 629207 629245 629282							642565 642602 642639 642676 642713 642751							655264 655302 655340 655378 655416 655454													
60" 50" 40" 30" 20" 10"							60" 50" 40" 30" 20"							60" 50" 40" 30" 20"							60" 50" 40" 30" 20"						
Versed Sine Supplement of 51 degrees, or Natural Co-sine of 51 degrees.							Versed Sine Supplement of 50 degrees, or Natural Co-sine of 50 degrees.							Versed Sine Supplement of 50 degrees, or Natural Co-sine of 50 degrees.							Versed Sine Supplement of 50 degrees, or Natural Co-sine of 50 degrees.						
Proport. 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. 4 8 11 15 19 23 27 30 34							parts. 4 8 11 15 19 23 27 30 34							parts. 4 8 11 15 19 23 27 30 34							parts. 4 8 11 15 19 23 27 30 34						

NATURAL CO-SINES IF RADIUS BE REJECTED.

RAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 130 degrees, or Natural Sine of 40 degrees.						Minutes
10'	20'	30'	40'	50'		
2788	642825	642862	642899	642936	642973	59
3011	643048	643085	643122	643159	643196	58
3233	643270	643307	643345	643382	643419	57
3456	643493	643530	643567	643604	643641	56
3679	643716	643753	643790	643827	643864	55
3901	643938	643975	644012	644049	644087	54
4124	644161	644198	644235	644272	644309	53
4346	644383	644420	644457	644494	644531	52
4569	644606	644643	644680	644717	644754	51
4791	644828	644865	644902	644939	644976	50
5013	645050	645087	645124	645161	645198	49
5236	645273	645310	645347	645384	645421	48
5458	645495	645532	645569	645606	645643	47
5680	645717	645754	645791	645828	645865	46
5902	645939	645976	646013	646050	646087	45
6124	646161	646198	646235	646272	646309	44
6346	646383	646420	646457	646494	646531	43
6568	646605	646642	646679	646716	646753	42
6790	646827	646864	646901	646938	646975	41
7012	647049	647086	647122	647159	647196	40
7233	647270	647307	647344	647381	647418	39
7455	647492	647529	647566	647603	647640	38
7677	647714	647751	647788	647824	647861	37
7898	647935	647972	648009	648046	648083	36
8120	648157	648194	648231	648268	648304	35
8341	648378	648415	648452	648489	648526	34
8563	648600	648637	648674	648710	648747	33
8784	648821	648858	648895	648932	648969	32
9006	649042	649079	649116	649153	649190	31
9227	649264	649301	649337	649374	649411	30
9448	649485	649522	649559	649595	649632	29
9669	649706	649743	649780	649817	649853	28
9890	649927	649964	650001	650038	650075	27
10111	650148	650185	650222	650259	650296	26
10332	650369	650406	650443	650480	650517	25
10553	650590	650627	650664	650701	650737	24
10774	650811	650848	650885	650921	650958	23
10995	651032	651069	651105	651142	651179	22
11216	651253	651289	651326	651363	651400	21
11437	651473	651510	651547	651584	651620	20
11657	651694	651731	651768	651804	651841	19
11878	651915	651951	651988	652025	652062	18
12098	652135	652172	652209	652245	652282	17
12319	652355	652392	652429	652466	652503	16
12539	652575	652612	652649	652686	652723	15
12760	652796	652833	652870	652907	652943	14
12980	652917	652954	652990	653027	653064	13
13200	653137	653174	653210	653247	653284	12
13421	653357	653394	653431	653467	653504	11
13641	653577	653614	653651	653688	653724	10
13861	653798	653834	653871	653908	653944	9
14081	654014	654051	654088	654124	654161	8
14301	654234	654271	654308	654344	654381	7
14521	654454	654491	654528	654564	654601	6
14741	654674	654711	654748	654784	654821	5
14961	654894	654931	654968	655004	655041	4
15181	655104	655141	655178	655214	655251	3
15401	655364	655401	655438	655474	655511	2
15621	655624	655661	655698	655734	655771	1
15841	655884	655921	655958	655994	656031	0
16061	656094	656131	656168	656204	656241	0
16281	656304	656341	656378	656414	656451	0
16501	656514	656551	656588	656624	656661	0
16721	656724	656761	656798	656834	656871	0
16941	656934	656971	657008	657044	657081	0
17161	657194	657231	657268	657304	657341	0
17381	657454	657491	657528	657564	657601	0
17601	657714	657751	657788	657824	657861	0
17821	657974	658011	658048	658084	658121	0
18041	658234	658271	658308	658344	658381	0
18261	658494	658531	658568	658604	658641	0
18481	658754	658791	658828	658864	658901	0
18701	658954	658991	659028	659064	659101	0
18921	659214	659251	659288	659324	659361	0
19141	659474	659511	659548	659584	659621	0
19361	659734	659771	659808	659844	659881	0
19581	659984	660021	660058	660094	660131	0
19801	660244	660281	660318	660354	660391	0
20021	660544	660581	660618	660654	660691	0
20241	660794	660831	660868	660904	660941	0
20461	661044	661081	661118	661154	661191	0
20681	661294	661331	661368	661404	661441	0
20901	661544	661581	661618	661654	661691	0
21121	661844	661881	661918	661954	661991	0
21341	662094	662131	662168	662204	662241	0
21561	662344	662381	662418	662454	662491	0
21781	662644	662681	662718	662754	662791	0
22001	662894	662931	662968	663004	663041	0
22221	663144	663181	663218	663254	663291	0
22441	663394	663431	663468	663504	663541	0
22661	663644	663681	663718	663754	663791	0
22881	663944	663981	664018	664054	664091	0
23101	664194	664231	664268	664304	664341	0
23321	664444	664481	664518	664554	664591	0
23541	664694	664731	664768	664804	664841	0
23761	664944	664981	665018	665054	665091	0
23981	665194	665231	665268	665304	665341	0
24201	665444	665481	665518	665554	665591	0
24421	665694	665731	665768	665804	665841	0
24641	665944	665981	666018	666054	666091	0
24861	666194	666231	666268	666304	666341	0
25081	666444	666481	666518	666554	666591	0
25301	666694	666731	666768	666804	666841	0
25521	666944	666981	667018	667054	667091	0
25741	667194	667231	667268	667304	667341	0
25961	667444	667481	667518	667554	667591	0
26181	667694	667731	667768	667804	667841	0
26401	667944	667981	668018	668054	668091	0
26621	668194	668231	668268	668304	668341	0
26841	668444	668481	668518	668554	668591	0
27061	668694	668731	668768	668804	668841	0
27281	668944	668981	669018	669054	669091	0
27501	669194	669231	669268	669304	669341	0
27721	669444	669481	669518	669554	669591	0
27941	669694	669731	669768	669804	669841	0
28161	669944	669981	670018	670054	670091	0
28381	670194	670231	670268	670304	670341	0
28601	670444	670481	670518	670554	670591	0
28821	670694	670731	670768	670804	670841	0
29041	670944	670981	671018	671054	671091	0
29261	671194	671231	671268	671304	671341	0
29481	671444	671481	671518	671554	671591	0
29701	671694	671731	671768	671804	671841	0
29921	671944	671981	672018	672054	672091	0
30141	672194	672231	672268	672304	672341	0
30361	672444	672481	672518	672554	672591	0
30581	672694	672731	672768	672804	672841	0
30801	672944	672981	673018	673054	673091	0
31021	673194	673231	673268	673304	673341	0
31241	673444	673481	673518	673554	673591	0
31461	673694	673731	673768	673804	673841	0
31681	673944	673981	674018	674054	674091	0
31901	674194	674231	674268	674304	674341	0
32121	674444	674481	674518	674554	674591	0
32341	674694	674731	674768	674804	674841	0
32561	674944	674981	675018	675054	675091	0
32781	675194	675231	675268	675304	675341	0
33001	675444	675481	675518	675554	675591	0
33221	675694	675731	675768	675804	675841	0
33441	675944	675981	676018	676054	676091	0
33661	676194	676231	676268	676304	676341	0
33881	676444	676481	676518	676554	676591	0
34101	676694	676731	676768	676804	676841	0
34321	676944	676981	677018	677054	677091	0
34541	677194	677231	677268	677304	677341	0
34761	677444	677481	677518	677554	677591	0
34981	677694	677731	677768	677804	677841	0
35201	677944	677981	678018	678054	678091	0
35421	678194	678231	678268	678304	678341	0
35641	678444	678481	678518	678554	678591	0
35861	678694	678731	678768	678804	678841	0
36081	678944	678981	679018	679054	679091	0
36301	679194	679231	679268	679304	679341	0
36521	679444	679481	679518	679554	679591	0
36741	679694	679731	679768	679804	679841	0
36961	679944	679981	680018	680054	680091	0
37181	680194	680231	680268	680304	680341	0
37401	680444	680481	680518	680554	680591	0
37621	680694	680731	680768	680804	680841	0

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED

Minutes	Versed Sine of 132 degrees, or Natural Sine of 42 degrees.						Minutes		Minutes	Versed Sine of 133 degrees, or Natural Sine of 43 degrees.						Minutes
	0'	10'	20'	30'	40'	50'				0'	10'	20'	30'	40'	50'	
0	1.669131	669167	669203	669239	669275	669311	59		0	1.681998	682034	682069	682105	682140	682176	59
1	669347	669383	669419	669455	669491	669527	58		1	682211	682247	682282	682317	682353	682388	58
2	669563	669599	669635	669671	669707	669743	57		2	682424	682459	682495	682530	682565	682601	57
3	669779	669815	669851	669887	669923	669959	56		3	682636	682672	682707	682743	682778	682813	56
4	669995	670031	670067	670103	670139	670175	55		4	682849	682884	682920	682955	682991	683026	55
5	670211	670247	670283	670319	670355	670391	54		5	683061	683097	683132	683168	683203	683238	54
6	670427	670463	670499	670535	670570	670606	53		6	683274	683309	683345	683380	683415	683451	53
7	670642	670678	670714	670750	670786	670822	52		7	683486	683522	683557	683592	683628	683663	52
8	670858	670894	670930	670966	671002	671038	51		8	683698	683734	683769	683805	683840	683875	51
9	671074	671110	671146	671182	671218	671254	50		9	683911	683946	683981	684017	684052	684088	50
10	1.671289	671325	671361	671397	671433	671469	49		10	1.684123	684158	684194	684229	684264	684300	49
11	671505	671541	671577	671613	671649	671685	48		11	684335	684370	684406	684441	684476	684512	48
12	671721	671757	671793	671828	671864	671900	47		12	684547	684582	684618	684653	684688	684724	47
13	671936	671972	672008	672044	672080	672116	46		13	684759	684794	684830	684865	684900	684936	46
14	672151	672187	672223	672259	672295	672331	45		14	684971	685006	685042	685077	685112	685148	45
15	672367	672403	672439	672474	672510	672546	44		15	685183	685218	685254	685289	685324	685360	44
16	672582	672618	672654	672690	672726	672761	43		16	685395	685430	685465	685501	685536	685571	43
17	672797	672833	672869	672905	672941	672977	42		17	685607	685642	685677	685712	685748	685783	42
18	673013	673048	673084	673120	673156	673192	41		18	685818	685854	685889	685924	685959	685995	41
19	673228	673263	673299	673335	673371	673407	40		19	686030	686065	686101	686136	686171	686206	40
20	1.673443	673479	673514	673550	673586	673622	39		20	1.686242	686277	686312	686347	686383	686418	39
21	673658	673694	673729	673765	673801	673837	38		21	686453	686488	686524	686559	686594	686630	38
22	673873	673908	673944	673980	674016	674052	37		22	686665	686700	686735	686770	686806	686841	37
23	674088	674123	674159	674195	674231	674267	36		23	686876	686911	686947	686982	687017	687053	36
24	674302	674338	674374	674410	674446	674481	35		24	687088	687123	687158	687193	687228	687264	35
25	674517	674553	674589	674625	674660	674696	34		25	687299	687334	687369	687404	687440	687475	34
26	674732	674768	674803	674839	674875	674911	33		26	687510	687545	687581	687616	687651	687687	33
27	674947	674982	675018	675054	675090	675125	32		27	687721	687757	687792	687827	687862	687897	32
28	675161	675197	675233	675268	675304	675340	31		28	687932	687968	688003	688038	688073	688108	31
29	675376	675411	675447	675483	675519	675554	30		29	688144	688179	688214	688249	688284	688319	30
30	1.675590	675626	675662	675697	675733	675769	29		30	1.688355	688390	688425	688460	688495	688530	29
31	675805	675840	675876	675912	675948	675983	28		31	688566	688601	688636	688671	688706	688741	28
32	676019	676055	676090	676126	676162	676198	27		32	688776	688812	688847	688882	688917	688952	27
33	676233	676269	676305	676340	676376	676412	26		33	688987	689022	689058	689093	689128	689163	26
34	676448	676483	676519	676555	676590	676626	25		34	689198	689233	689268	689303	689339	689374	25
35	676662	676698	676733	676769	676805	676840	24		35	689409	689444	689479	689514	689550	689585	24
36	676876	676912	676947	676983	677019	677054	23		36	689620	689655	689690	689725	689760	689795	23
37	677090	677126	677161	677197	677233	677268	22		37	689830	689865	689900	689935	689971	690006	22
38	677304	677340	677376	677411	677447	677482	21		38	690041	690076	690111	690146	690181	690216	21
39	677518	677554	677589	677625	677661	677696	20		39	690251	690286	690321	690356	690392	690427	20
40	1.677732	677768	677803	677839	677875	677910	19		40	1.690462	690497	690532	690567	690602	690637	19
41	677946	677982	678017	678053	678088	678124	18		41	690672	690707	690742	690777	690812	690847	18
42	678160	678195	678231	678267	678302	678338	17		42	690882	690917	690953	690988	691023	691058	17
43	678373	678409	678445	678480	678516	678552	16		43	691093	691128	691163	691198	691233	691268	16
44	678587	678623	678658	678694	678730	678765	15		44	691303	691338	691373	691408	691443	691478	15
45	678801	678836	678872	678908	678943	678979	14		45	691513	691548	691583	691618	691653	691688	14
46	679014	679050	679086	679121	679157	679192	13		46	691723	691758	691793	691828	691863	691898	13
47	679228	679263	679299	679335	679370	679406	12		47	691933	691968	692003	692038	692073	692108	12
48	679441	679477	679512	679548	679584	679619	11		48	692143	692178	692213	692248	692283	692318	11
49	679655	679690	679726	679761	679797	679833	10		49	692353	692388	692423	692458	692493	692528	10
50	1.679868	679904	679939	679975	680010	680046	9		50	1.692563	692598	692633	692668	692703	692738	9
51	680081	680117	680152	680188	680224	680259	8		51	692773	692808	692843	692878	692913	692948	8
52	680295	680330	680366	680401	680437	680472	7		52	692983	693017	693052	693087	693122	693157	7
53	680508	680543	680579	680614	680650	680685	6		53	693192	693227	693262	693297	693332	693367	6
54	680721	680756	680792	680827	680863	680898	5		54	693402	693437	693472	693507	693542	693577	5
55	680934	680969	681005	681040	681076	681111	4		55	693611	693646	693681	693716	693751	693786	4
56	681147	681182	681218	681253	681289	681324	3		56	693821	693856	693891	693926	693961	693996	3
57	681360	681395	681431	681466	681502	681537	2		57	694030	694065	694100	694135	694170	694205	2
58	681573	681608	681644	681679	681715	681750	1		58	694240	694275	694310	694344	694379	694414	1
59	681786	681821	681857	681892	681927	681963	0		59	694449	694484	694519	694554	694589	694623	0
	60'	50'	40'	30'	20'	10'				60'	50'	40'	30'	20'	10'	
Versed Sine Supplement of 47 degrees, or Natural Co-sine of 47 degrees.							Versed Sine Supplement of 46 degrees, or Natural Co-sine of 46 degrees.									
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"									
parts. { 4 7 11 14 18 21 25 29 32							parts. { 4 7 11 14 18 21 25 29 32									

NATURAL CO-SINES IF RADIUS BE REJECTED.

VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 134 degrees, or atural Sine of 44 degrees.						Minutes
10"	20"	30"	40"	50"		
94693	694728	694763	694798	694833		50
94992	694937	694972	695007	695042		58
95112	695146	695181	695216	695251		57
95321	695356	695390	695425	695460		56
95530	695565	695599	695634	695669		55
95739	695774	695808	695843	695878		54
95948	695982	696017	696052	696087		53
96156	696191	696226	696261	696296		52
96365	696400	696435	696470	696504		51
96574	696609	696644	696678	696713		50
96783	696817	696852	696887	696922		49
96991	697026	697061	697096	697130		48
97200	697235	697269	697304	697339		47
97408	697443	697478	697513	697547		46
97617	697652	697686	697721	697756		45
97825	697860	697895	697930	697964		44
98034	698068	698103	698138	698172		43
98242	698276	698311	698346	698381		42
98450	698485	698519	698554	698589		41
98658	698693	698727	698762	698797		40
98866	698901	698936	698970	699005		39
99074	699109	699144	699178	699213		38
99282	699317	699352	699386	699421		37
99490	699525	699559	699594	699629		36
99698	699733	699767	699802	699837		35
99906	699940	699975	700010	700044		34
00114	700148	700183	700217	700252		33
00321	700356	700390	700425	700460		32
00529	700563	700598	700633	700667		31
00736	700771	700806	700840	700875		30
00944	700978	701013	701048	701082		29
01151	701186	701220	701255	701290		28
01359	701393	701428	701462	701497		27
01566	701601	701635	701670	701704		26
01773	701808	701842	701877	701911		25
01980	702015	702049	702084	702119		24
02188	702222	702257	702291	702326		23
02395	702429	702464	702498	702533		22
02602	702636	702671	702705	702740		21
02809	702843	702878	702912	702947		20
03016	703050	703084	703119	703153		19
03222	703257	703291	703326	703360		18
03429	703464	703498	703533	703567		17
03636	703670	703705	703739	703774		16
03843	703877	703911	703946	703980		15
04049	704084	704118	704152	704187		14
04256	704290	704325	704359	704393		13
04462	704497	704531	704565	704600		12
04669	704703	704737	704772	704806		11
04875	704909	704944	704978	705013		10
05081	705116	705150	705184	705219		9
05288	705322	705356	705391	705425		8
05494	705528	705562	705597	705631		7
05700	705734	705769	705803	705837		6
05906	705940	705975	706009	706043		5
06112	706146	706181	706215	706249		4
06318	706352	706387	706421	706455		3
06524	706558	706592	706627	706661		2
06730	706764	706798	706832	706867		1
06935	706970	707004	707038	707072		0
50"	40"	30"	20"	10"		Minutes
Natural Sine Supplement of 45 degrees, or atural Co-sine of 45 degrees.						Minutes
2"	3"	4"	5"	6"	7"	
7	10	14	17	21	24	31
Versed Sine of 135 degrees, or Natural Sine of 45 degrees.						Minutes
0"	10"	20"	30"	40"	50"	
1. 707107	707141	707175	707210	707244	707278	50
1. 707312	707347	707381	707415	707450	707484	58
2. 707518	707552	707587	707621	707655	707689	57
3. 707723	707758	707792	707826	707861	707895	56
4. 707929	707963	707998	708032	708066	708100	55
5. 708134	708169	708203	708237	708271	708306	54
6. 708340	708374	708408	708442	708477	708511	53
7. 708545	708579	708614	708648	708682	708716	52
8. 708750	708785	708819	708853	708887	708921	51
9. 708956	708990	709024	709058	709092	709126	50
10. 709161	709195	709229	709263	709297	709332	49
11. 709366	709400	709434	709468	709502	709537	48
12. 709571	709605	709639	709673	709707	709742	47
13. 709776	709810	709844	709878	709912	709946	46
14. 709981	710015	710049	710083	710117	710151	45
15. 710185	710220	710254	710288	710322	710356	44
16. 710390	710424	710458	710492	710527	710561	43
17. 710595	710629	710663	710697	710731	710765	42
18. 710799	710834	710868	710902	710936	710970	41
19. 711004	711038	711072	711106	711140	711174	40
20. 711209	711243	711277	711311	711345	711379	39
21. 711413	711447	711481	711515	711549	711583	38
22. 711617	711651	711686	711720	711754	711788	37
23. 711822	711856	711890	711924	711958	711992	36
24. 712026	712060	712094	712128	712162	712196	35
25. 712230	712264	712298	712332	712366	712400	34
26. 712434	712468	712502	712536	712570	712605	33
27. 712639	712673	712707	712741	712775	712809	32
28. 712843	712877	712911	712945	712979	713013	31
29. 713047	713081	713115	713148	713182	713216	30
30. 713250	713284	713318	713352	713386	713420	29
31. 713454	713488	713522	713556	713590	713624	28
32. 713658	713692	713726	713760	713794	713828	27
33. 713862	713896	713930	713964	713998	714032	26
34. 714066	714099	714133	714167	714201	714235	25
35. 714269	714303	714337	714371	714405	714439	24
36. 714473	714507	714541	714574	714608	714642	23
37. 714676	714710	714744	714778	714812	714846	22
38. 714880	714914	714947	714981	715015	715049	21
39. 715083	715117	715151	715185	715219	715252	20
40. 715286	715320	715354	715388	715422	715456	19
41. 715490	715523	715557	715591	715625	715659	18
42. 715693	715727	715760	715794	715828	715862	17
43. 715896	715930	715964	715997	716031	716065	16
44. 716099	716133	716167	716200	716234	716268	15
45. 716302	716336	716370	716403	716437	716471	14
46. 716505	716539	716573	716606	716640	716674	13
47. 716708	716742	716775	716809	716843	716877	12
48. 716911	716944	716978	717012	717046	717080	11
49. 717113	717147	717181	717215	717249	717282	10
50. 717316	717350	717384	717417	717451	717485	9
51. 717519	717552	717586	717620	717654	717688	8
52. 717721	717755	717789	717823	717856	717890	7
53. 717924	717958	717991	718025	718059	718093	6
54. 718126	718160	718194	718228	718261	718295	5
55. 718329	718362	718396	718430	718464	718497	4
56. 718531	718565	718598	718632	718666	718700	3
57. 718733	718767	718801	718834	718868	718902	2
58. 718936	718969	719003	719037	719070	719104	1
59. 719138	719171	719205	719239	719272	719306	0
60"	50"	40"	30"	20"	10"	Minutes
Versed Sine Supplement of 44 degrees, or Natural Co-sine of 44 degrees.						Minutes
Proport. 1"	2"	3"	4"	5"	6"	
parts. 3	7	10	14	17	20	27
						31

NATURAL CO-SINES IF RADIUS BE REJECTED.

I 2

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJE

Minutes		Versed Sine of 136 degrees, or Natural Sine of 46 degrees.						Minutes
		0'	10'	20'	30'	40'	50'	
0	1.	719340	719373	719407	719441	719475	719508	59
1		719542	719575	719609	719643	719676	719710	58
2		719744	719777	719811	719845	719878	719912	57
3		719946	719979	720013	720047	720080	720114	56
4		720148	720181	720215	720248	720282	720316	55
5		720349	720383	720417	720450	720484	720517	54
6		720551	720585	720618	720652	720686	720719	53
7		720753	720786	720820	720854	720887	720921	52
8		720954	720988	721022	721055	721089	721122	51
9		721156	721190	721223	721257	721290	721324	50
10	1.	721357	721391	721425	721458	721492	721525	49
11		721559	721592	721626	721660	721693	721727	48
12		721760	721794	721827	721861	721894	721928	47
13		721962	721995	722029	722062	722096	722129	46
14		722163	722196	722230	722264	722297	722330	45
15		722364	722397	722431	722465	722498	722532	44
16		722565	722599	722632	722666	722699	722733	43
17		722766	722800	722833	722867	722900	722934	42
18		722967	723001	723034	723068	723101	723135	41
19		723168	723202	723235	723269	723302	723335	40
20	1.	723369	723402	723436	723469	723503	723536	39
21		723570	723603	723637	723670	723704	723737	38
22		723771	723804	723837	723871	723904	723938	37
23		723971	724005	724038	724072	724105	724138	36
24		724172	724205	724239	724272	724306	724339	35
25		724372	724406	724439	724473	724506	724540	34
26		724573	724606	724640	724673	724707	724740	33
27		724773	724807	724840	724874	724907	724940	32
28		724974	725007	725041	725074	725107	725141	31
29		725174	725207	725241	725274	725308	725341	30
30	1.	725374	725408	725441	725474	725508	725541	29
31		725575	725608	725641	725675	725708	725741	28
32		725775	725808	725841	725875	725908	725941	27
33		725975	726008	726041	726075	726108	726141	26
34		726175	726208	726241	726275	726308	726341	25
35		726375	726408	726441	726475	726508	726541	24
36		726575	726608	726641	726675	726708	726741	23
37		726775	726808	726841	726874	726908	726941	22
38		726974	727008	727041	727074	727107	727141	21
39		727174	727207	727241	727274	727307	727340	20
40	1.	727374	727407	727441	727473	727507	727540	19
41		727573	727606	727640	727673	727706	727740	18
42		727773	727806	727839	727872	727906	727939	17
43		727972	728005	728039	728072	728105	728138	16
44		728171	728205	728238	728271	728305	728338	15
45		728371	728404	728437	728471	728504	728537	14
46		728570	728603	728637	728670	728703	728736	13
47		728769	728803	728836	728869	728902	728935	12
48		728969	729002	729035	729068	729101	729135	11
49		729168	729201	729234	729267	729300	729334	10
50	1.	729367	729400	729433	729466	729499	729533	9
51		729566	729599	729632	729665	729698	729731	8
52		729765	729798	729831	729864	729897	729930	7
53		729963	729997	730030	730063	730096	730129	6
54		730162	730195	730229	730262	730295	730328	5
55		730361	730394	730427	730460	730493	730527	4
56		730560	730593	730626	730659	730692	730725	3
57		730758	730791	730824	730858	730891	730924	2
58		730957	730990	731023	731056	731089	731122	1
59		731155	731188	731221	731255	731288	731321	0
		60"	50"	40"	30"	20"	10"	
Minutes		Versed Sine Supplement of 43 degrees, or Natural Co-sine of 43 degrees.						Minutes
		0'	10'	20'	30'	40'	50'	
0	Proport.	1	2	3	4	5	6	7
1	parts.	3	7	10	13	17	20	23
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		60"	50"	40"	30"	20"	10"	
Minutes		Versed Sine Supplement of 42 degrees Natural Co-sine of 42 degrees.						Minutes
		0'	10'	20'	30'	40'	50'	
0	Proport.	1	2	3	4	5	6	7
1	parts.	3	7	10	13	16	20	23
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		60"	50"	40"	30"	20"	10"	

VERSSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 138 degrees, or Natural Sine of 48 degrees.						Minutes
10"	20"	30"	40"	50"		
743177	743210	743242	743275	743307	59	
743371	743404	743437	743469	743502	58	
743566	743599	743631	743664	743696	57	
743761	743793	743826	743858	743890	56	
743955	743988	744020	744052	744085	55	
744150	744182	744214	744247	744279	54	
744344	744376	744409	744441	744473	53	
744538	744571	744603	744635	744668	52	
744732	744765	744797	744829	744862	51	
744926	744959	744991	745023	745056	50	
745120	745153	745185	745217	745250	49	
745314	745347	745379	745411	745444	48	
745508	745541	745573	745605	745638	47	
745702	745734	745767	745799	745831	46	
745896	745928	745961	745993	746025	45	
746090	746122	746154	746186	746219	44	
746283	746316	746348	746380	746412	43	
746477	746509	746541	746574	746606	42	
746670	746703	746735	746767	746799	41	
746864	746896	746928	746961	746993	40	
747057	747090	747122	747154	747186	39	
747251	747283	747315	747347	747379	38	
747444	747476	747508	747541	747573	37	
747637	747669	747702	747734	747766	36	
747830	747862	747895	747927	747959	35	
748023	748056	748088	748120	748152	34	
748216	748248	748281	748313	748345	33	
748409	748441	748474	748506	748538	32	
748602	748634	748667	748699	748731	31	
748795	748827	748859	748891	748924	30	
748988	749020	749052	749084	749116	29	
749181	749213	749245	749277	749309	28	
749373	749405	749437	749469	749502	27	
749566	749598	749630	749662	749694	26	
749758	749790	749822	749855	749887	25	
749951	749983	750015	750047	750079	24	
750143	750175	750207	750239	750271	23	
750335	750368	750400	750432	750464	22	
750528	750560	750592	750624	750656	21	
750720	750752	750784	750816	750848	20	
750912	750944	750976	751008	751040	19	
751104	751136	751168	751200	751232	18	
751296	751328	751360	751392	751424	17	
751488	751520	751552	751584	751616	16	
751680	751712	751744	751776	751808	15	
751872	751904	751936	751968	752000	14	
752064	752096	752128	752160	752192	13	
752255	752287	752319	752351	752383	12	
752447	752479	752511	752543	752575	11	
752638	752670	752702	752734	752766	10	
752830	752862	752894	752926	752958	9	
753021	753053	753085	753117	753149	8	
753213	753245	753276	753308	753340	7	
753404	753436	753468	753500	753532	6	
753595	753627	753659	753691	753723	5	
753786	753818	753850	753882	753914	4	
753978	754009	754041	754073	754105	3	
754169	754200	754232	754264	754296	2	
754360	754391	754423	754455	754487	1	
754551	754582	754614	754646	754678	0	
50"	40"	30"	20"	10"		Minutes
Natural Supplement of 41 degrees, or Versed Co-sine of 41 degrees.						
2"	3"	4"	5"	6"	7"	8"
6	10	13	16	19	22	26
29						

Versed Sine of 139 degrees, or Natural Sine of 49 degrees.						Minutes
0"	10"	20"	30"	40"	50"	
1. 754710	754741	754773	754805	754837	754869	59
1. 754900	754932	754964	754996	755028	755059	58
2. 755091	755123	755155	755186	755218	755250	57
3. 755282	755314	755345	755377	755409	755441	56
4. 755472	755504	755536	755568	755599	755631	55
5. 755663	755695	755726	755758	755790	755822	54
6. 755853	755885	755917	755949	755980	756012	53
7. 756044	756076	756107	756139	756171	756203	52
8. 756234	756266	756298	756329	756361	756393	51
9. 756425	756456	756488	756520	756551	756583	50
10. 756615	756646	756678	756710	756742	756773	49
11. 756805	756837	756868	756900	756932	756963	48
12. 756995	757027	757058	757090	757122	757153	47
13. 757185	757217	757248	757280	757312	757343	46
14. 757375	757407	757438	757470	757502	757533	45
15. 757505	757537	757568	757600	757632	757663	44
16. 757755	757786	757818	757850	757881	757913	43
17. 757945	757976	758008	758039	758071	758103	42
18. 758134	758166	758198	758229	758261	758292	41
19. 758324	758356	758387	758419	758450	758482	40
20. 758514	758545	758577	758608	758640	758672	39
21. 758703	758735	758766	758798	758829	758861	38
22. 758893	758924	758956	758987	759019	759050	37
23. 759082	759114	759145	759177	759208	759240	36
24. 759271	759303	759334	759366	759397	759429	35
25. 759461	759492	759524	759555	759587	759618	34
26. 759650	759681	759713	759744	759776	759807	33
27. 759839	759870	759902	759933	759965	759996	32
28. 760028	760060	760091	760123	760154	760186	31
29. 760217	760249	760280	760311	760343	760374	30
30. 760406	760437	760469	760500	760532	760563	29
31. 760595	760626	760658	760689	760721	760752	28
32. 760784	760815	760847	760878	760910	760941	27
33. 760972	761004	761035	761067	761098	761130	26
34. 761161	761193	761224	761255	761287	761318	25
35. 761350	761381	761413	761444	761475	761507	24
36. 761538	761570	761601	761633	761664	761695	23
37. 761727	761758	761790	761821	761852	761884	22
38. 761915	761947	761978	762009	762041	762072	21
39. 762104	762135	762166	762198	762229	762261	20
40. 762292	762323	762355	762386	762417	762449	19
41. 762481	762512	762543	762574	762606	762637	18
42. 762668	762700	762731	762762	762794	762825	17
43. 762856	762888	762919	762950	762982	763013	16
44. 763041	763076	763107	763138	763170	763201	15
45. 763232	763264	763295	763326	763358	763389	14
46. 763420	763452	763483	763514	763546	763577	13
47. 763608	763640	763671	763702	763733	763765	12
48. 763796	763827	763859	763890	763921	763952	11
49. 763984	764015	764046	764078	764109	764140	10
50. 764171	764203	764234	764265	764296	764328	9
51. 764359	764390	764422	764453	764484	764515	8
52. 764547	764578	764609	764640	764672	764703	7
53. 764734	764765	764796	764828	764859	764890	6
54. 764921	764953	764984	765015	765046	765078	5
55. 765109	765140	765171	765202	765234	765265	4
56. 765296	765327	765358	765390	765421	765452	3
57. 765483	765514	765546	765577	765608	765639	2
58. 765670	765702	765733	765764	765795	765826	1
59. 765857	765889	765920	765951	765982	766013	0
60"	50"	40"	30"	20"	10"	Minutes
Versed Sine Supplement of 40 degrees, or Natural Co-sine of 40 degrees.						
Propor. 1"	2"	3"	4"	5"	6"	7"
parts. { 3	6	9	13	16	19	23
						28

NATURAL CO-SINES IF RADIUS BE REJECTED.

NATURAL VERSED SINES: OR NATURAL SINES IF RADIUS BE REJ

Minutes	Versed Sine of 140 degrees, or Natural Sine of 50 degrees.						Minutes
	0°	10°	20°	30°	40°	50°	
0	1.766044	766076	766107	766138	766169	766200	59
1	766231	766263	766294	766325	766356	766387	58
2	766418	766449	766481	766512	766543	766574	57
3	766605	766636	766667	766698	766730	766761	56
4	766792	766823	766854	766885	766916	766947	55
5	766979	767010	767041	767072	767103	767134	54
6	767165	767196	767227	767258	767290	767321	53
7	767352	767383	767414	767445	767476	767507	52
8	767538	767569	767600	767631	767662	767694	51
9	767725	767756	767787	767818	767849	767880	50
10	1.767911	767942	767973	768004	768035	768066	49
11	768097	768128	768159	768190	768221	768252	48
12	768284	768315	768346	768377	768408	768439	47
13	768470	768501	768532	768563	768594	768625	46
14	768656	768687	768718	768749	768780	768811	45
15	768842	768873	768904	768935	768966	768997	44
16	769028	769059	769090	769121	769152	769183	43
17	769214	769245	769276	769307	769338	769369	42
18	769400	769431	769461	769492	769523	769554	41
19	769585	769616	769647	769678	769709	769740	40
20	1.769771	769802	769833	769864	769895	769926	39
21	769957	769988	770019	770049	770080	770111	38
22	770142	770173	770204	770235	770266	770297	37
23	770328	770359	770390	770421	770451	770482	36
24	770513	770544	770575	770606	770637	770668	35
25	770699	770730	770760	770791	770822	770853	34
26	770884	770915	770946	770977	771007	771038	33
27	771069	771100	771131	771162	771193	771224	32
28	771254	771285	771316	771347	771378	771409	31
29	771440	771470	771501	771532	771563	771594	30
30	1.771625	771655	771686	771717	771748	771779	29
31	771810	771840	771871	771902	771933	771964	28
32	771995	772025	772056	772087	772118	772149	27
33	772179	772210	772241	772272	772303	772333	26
34	772364	772395	772426	772457	772487	772518	25
35	772549	772580	772610	772641	772672	772703	24
36	772734	772764	772795	772826	772857	772887	23
37	772918	772949	772980	773010	773041	773072	22
38	773103	773133	773164	773195	773226	773256	21
39	773287	773318	773349	773379	773410	773441	20
40	1.773472	773502	773533	773564	773594	773625	19
41	773656	773687	773717	773748	773779	773810	18
42	773840	773871	773902	773933	773963	773994	17
43	774024	774055	774086	774117	774147	774178	16
44	774209	774239	774270	774301	774331	774362	15
45	774393	774423	774454	774485	774515	774546	14
46	774577	774607	774638	774669	774699	774730	13
47	774761	774791	774822	774853	774883	774914	12
48	774944	774975	775006	775036	775067	775098	11
49	775128	775159	775190	775220	775251	775281	10
50	1.775312	775343	775373	775404	775435	775465	9
51	775496	775526	775557	775588	775618	775649	8
52	775679	775710	775741	775771	775802	775832	7
53	775863	775894	775924	775955	775985	776016	6
54	776046	776077	776108	776138	776169	776199	5
55	776230	776260	776291	776322	776352	776383	4
56	776413	776444	776474	776505	776535	776566	3
57	776596	776627	776658	776688	776719	776749	2
58	776780	776810	776841	776871	776902	776932	1
59	776963	776993	777024	777054	777085	777115	0
Minutes	60°	50°	40°	30°	20°	10°	Minutes
Versed Sine Supplement of 39 degrees, or Natural Co-sine of 39 degrees.							
Proport.	1"	2"	3"	4"	5"	6"	7"
parts.	3	6	9	12	15	19	25
Versed Sine Supplement of 38 degrees, or Natural Co-sine of 38 degrees.							
Proport.	1"	2"	3"	4"	5"	6"	7"
parts.	3	6	9	12	15	18	21

NATURAL CO-SINES IF RADIUS BE REJECTED.

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 142 degrees, or Natural Sine of 52 degrees.							Minutes
0°	10°	20°	30°	40°	50°		
1.788011	788041	788070	788100	788130	788160	59	
788190	788220	788249	788279	788309	788339	58	
788369	788399	788428	788458	788488	788518	57	
788548	788578	788607	788637	788667	788697	56	
788727	788756	788786	788816	788846	788876	55	
788905	788935	788965	788995	789025	789054	54	
789084	789114	789144	789173	789203	789233	53	
789263	789293	789322	789352	789382	789412	52	
789441	789471	789501	789531	789560	789590	51	
789620	789650	789679	789709	789739	789769	50	
789798	789828	789858	789888	789917	789947	49	
789977	790006	790036	790066	790096	790125	48	
790155	790185	790214	790244	790274	790304	47	
790333	790363	790393	790422	790452	790482	46	
790511	790541	790571	790601	790630	790660	45	
790690	790719	790749	790779	790808	790838	44	
790868	790897	790927	790957	790987	791016	43	
791046	791075	791105	791135	791164	791194	42	
791224	791253	791283	791312	791342	791372	41	
791401	791431	791461	791490	791520	791550	40	
791579	791609	791638	791668	791698	791727	39	
791757	791787	791816	791846	791875	791905	38	
791935	791964	791994	792023	792053	792082	37	
792112	792142	792171	792201	792230	792260	36	
792290	792319	792349	792378	792408	792438	35	
792467	792497	792526	792556	792585	792615	34	
792644	792674	792704	792733	792763	792792	33	
792822	792851	792881	792910	792940	792970	32	
792999	793029	793058	793088	793117	793147	31	
793176	793206	793235	793265	793294	793324	30	
793353	793383	793412	793442	793471	793501	29	
793530	793560	793589	793619	793648	793678	28	
793707	793737	793766	793796	793825	793855	27	
793884	793914	793943	793973	794002	794032	26	
794061	794091	794120	794150	794179	794208	25	
794238	794267	794297	794326	794356	794385	24	
794415	794444	794474	794503	794532	794562	23	
794591	794621	794650	794680	794709	794738	22	
794768	794797	794827	794856	794886	794915	21	
794944	794974	795003	795033	795062	795091	20	
795121	795150	795180	795209	795238	795268	19	
795297	795327	795356	795385	795415	795444	18	
795473	795503	795532	795562	795591	795620	17	
795650	795679	795708	795738	795767	795797	16	
795826	795855	795885	795914	795943	795973	15	
796002	796031	796061	796090	796119	796149	14	
796178	796207	796237	796266	796295	796325	13	
796354	796383	796413	796442	796472	796501	12	
796530	796559	796589	796618	796647	796677	11	
796706	796735	796764	796794	796823	796852	10	
796882	796911	796940	796969	796999	797028	9	
797057	797087	797116	797145	797174	797204	8	
797233	797262	797291	797321	797350	797379	7	
797408	797438	797467	797496	797525	797555	6	
797584	797613	797642	797672	797701	797730	5	
797759	797789	797818	797847	797876	797906	4	
797935	797964	797993	798022	798052	798081	3	
798110	798139	798168	798198	798227	798256	2	
798285	798314	798344	798373	798402	798431	1	
798460	798490	798519	798548	798577	798606	0	
60°	50°	40°	30°	20°	10°		Minutes
Versed Sine Supplement of 37 degrees, or Natural Co-sine of 37 degrees.							Minutes
part. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							
to. } 3 6 9 12 15 18 21 24 27							

Versed Sine of 143 degrees, or Natural Sine of 53 degrees.							Minutes
0°	10°	20°	30°	40°	50°		
1.798636	798665	798694	798723	798753	798781	59	
798811	798840	798869	798898	798927	798956	58	
798985	799015	799044	799073	799102	799131	57	
799160	799190	799219	799248	799277	799306	56	
799335	799364	799393	799423	799452	799481	55	
799510	799539	799568	799597	799626	799656	54	
799685	799714	799743	799772	799801	799830	53	
799859	799888	799917	799946	799976	800005	52	
800034	800063	800092	800121	800150	800179	51	
800208	800237	800266	800295	800325	800354	50	
800383	800412	800441	800470	800499	800528	49	
800557	800586	800615	800644	800673	800702	48	
800731	800760	800789	800819	800848	800877	47	
800906	800935	800964	800993	801022	801051	46	
801080	801109	801138	801167	801196	801225	45	
801254	801283	801312	801341	801370	801399	44	
801428	801457	801486	801515	801544	801573	43	
801602	801631	801660	801689	801718	801747	42	
801776	801805	801834	801863	801892	801920	41	
801949	801978	802007	802036	802065	802094	40	
802123	802152	802181	802210	802239	802268	39	
802297	802326	802355	802384	802413	802442	38	
802470	802499	802528	802557	802586	802615	37	
802644	802673	802702	802731	802760	802789	36	
802817	802846	802875	802904	802933	802962	35	
802991	803020	803049	803078	803106	803135	34	
803164	803193	803222	803251	803280	803309	33	
803337	803366	803395	803424	803453	803482	32	
803511	803540	803568	803597	803626	803655	31	
803684	803713	803741	803770	803799	803828	30	
803857	803886	803915	803943	803972	804001	29	
804030	804059	804088	804116	804145	804174	28	
804203	804232	804260	804289	804318	804347	27	
804376	804404	804433	804462	804491	804520	26	
804548	804577	804606	804635	804664	804692	25	
804721	804750	804779	804807	804836	804865	24	
804894	804923	804951	804980	805009	805038	23	
805066	805095	805124	805153	805181	805210	22	
805239	805268	805296	805325	805354	805383	21	
805411	805440	805469	805498	805526	805555	20	
805584	805612	805641	805670	805699	805727	19	
805756	805785	805813	805842	805871	805900	18	
805928	805957	805986	806014	806043	806072	17	
806100	806129	806158	806187	806215	806244	16	
806273	806301	806330	806359	806387	806416	15	
806445	806473	806502	806531	806559	806588	14	
806617	806645	806674	806703	806731	806760	13	
806788	806817	806846	806874	806903	806932	12	
806960	806989	807018	807046	807075	807103	11	
807132	807161	807189	807218	807247	807275	10	
807304	807332	807361	807390	807418	807447	9	
807475	807504	807533	807561	807590	807618	8	
807647	807676	807704	807733	807761	807790	7	
807818	807847	807876	807904	807933	807961	6	
807990	808018	808047	808076	808104	808133	5	
808161	808190	808218	808247	808275	808304	4	
808333	808361	808390	808418	808447	808475	3	
808504	808532	808561	808589	808618	808646	2	
808675	808703	808732	808760	808789	808817	1	
808846	808874	808903	808931	808960	808988	0	
60°	50°	40°	30°	20°	10°		Minutes
Versed Sine Supplement of 36 degrees, or Natural Co-sine of 36 degrees.							Minutes
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							
parts. } 3 6 9 12 14 17 20 23 26							

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTET

Versed Sine of 144 degrees, or Natural Sine of 54 degrees.							Versed Sine of 145 degrees, or Natural Sine of 55 degrees.													
Minutes	0"	10"	20"	30"	40"	50"	Minutes	0"	10"	20"	30"	40"	50"	Minutes						
0	1.809017	809045	809074	809102	809131	809159	59	1.819152	819180	819208	819235	819263	819291	59						
1	809188	809216	809245	809273	809302	809330	58	819319	819347	819374	819402	819430	819458	58						
2	809359	809387	809416	809444	809473	809501	57	819486	819513	819541	819569	819597	819624	57						
3	809530	809558	809587	809615	809643	809672	56	819652	819680	819708	819736	819763	819791	56						
4	809700	809729	809757	809786	809814	809843	55	819819	819847	819874	819902	819930	819958	55						
5	809871	809899	809928	809956	809985	810013	54	819985	820013	820041	820069	820096	820124	54						
6	810042	810070	810098	810127	810155	810184	53	820152	820180	820207	820235	820263	820291	53						
7	810212	810241	810269	810297	810326	810354	52	820318	820346	820374	820401	820429	820457	52						
8	810383	810411	810439	810468	810496	810525	51	820485	820512	820540	820568	820595	820623	51						
9	810553	810581	810610	810638	810667	810695	50	820651	820679	820706	820734	820762	820790	50						
10	1.810723	810752	810780	810808	810837	810865	49	1.820817	820845	820872	820900	820928	820955	49						
11	810894	810923	810950	810979	811007	811035	48	820983	821011	821039	821066	821094	821121	48						
12	811064	811092	811121	811149	811177	811206	47	821149	821177	821205	821232	821260	821288	47						
13	811234	811262	811291	811319	811347	811376	46	821315	821343	821370	821398	821426	821453	46						
14	811404	811432	811461	811489	811517	811546	45	821481	821509	821536	821564	821592	821619	45						
15	811574	811602	811631	811659	811687	811716	44	821647	821675	821702	821730	821757	821785	44						
16	811744	811772	811801	811829	811857	811885	43	821813	821840	821868	821896	821923	821951	43						
17	811914	811942	811970	811999	812027	812055	42	821978	822006	822034	822061	822089	822116	42						
18	812084	812112	812140	812168	812197	812225	41	822144	822172	822199	822227	822254	822282	41						
19	812253	812282	812310	812338	812366	812395	40	822310	822337	822365	822392	822420	822448	40						
20	1.812423	812451	812479	812508	812536	812564	39	1.822475	822503	822530	822558	822585	822613	39						
21	812592	812621	812649	812677	812705	812734	38	822641	822668	822696	822723	822751	822778	38						
22	812762	812790	812818	812847	812875	812903	37	822806	822833	822861	822889	822916	822944	37						
23	812931	812960	812988	813016	813044	813073	36	822971	822999	823026	823054	823081	823109	36						
24	813101	813129	813157	813185	813214	813242	35	823136	823164	823191	823219	823246	823274	35						
25	813270	813298	813326	813355	813383	813411	34	823302	823329	823357	823384	823412	823439	34						
26	813439	813467	813496	813524	813552	813580	33	823467	823494	823522	823549	823577	823604	33						
27	813608	813637	813665	813693	813721	813749	32	823632	823659	823687	823714	823742	823769	32						
28	813778	813806	813834	813862	813890	813918	31	823797	823824	823851	823879	823906	823934	31						
29	813947	813975	814003	814031	814059	814087	30	823961	823989	824016	824044	824071	824099	30						
30	1.814116	814144	814172	814200	814228	814256	29	1.824126	824154	824181	824209	824236	824263	29						
31	814284	814313	814341	814369	814397	814425	28	824291	824318	824346	824373	824401	824428	28						
32	814453	814481	814509	814538	814566	814594	27	824456	824483	824510	824538	824565	824593	27						
33	814622	814650	814678	814706	814734	814763	26	824620	824648	824675	824702	824730	824757	26						
34	814791	814819	814847	814875	814903	814931	25	824785	824812	824839	824867	824894	824922	25						
35	814959	814987	815015	815044	815072	815100	24	824949	824977	825004	825031	825059	825086	24						
36	815128	815156	815184	815212	815240	815268	23	825113	825141	825168	825196	825223	825250	23						
37	815296	815324	815352	815380	815408	815437	22	825278	825305	825333	825360	825387	825415	22						
38	815465	815493	815521	815549	815577	815605	21	825442	825469	825497	825524	825551	825579	21						
39	815633	815661	815689	815717	815745	815773	20	825606	825634	825661	825688	825716	825743	20						
40	1.815801	815829	815857	815885	815913	815941	19	1.825770	825798	825825	825852	825880	825907	19						
41	815969	815997	816026	816054	816082	816110	18	825934	825962	825989	826016	826044	826071	18						
42	816138	816166	816194	816222	816250	816278	17	826098	826126	826153	826180	826208	826235	17						
43	816306	816334	816362	816390	816418	816446	16	826262	826289	826317	826344	826371	826399	16						
44	816474	816502	816530	816558	816586	816614	15	826426	826453	826481	826508	826535	826562	15						
45	816642	816670	816698	816725	816753	816781	14	826590	826617	826644	826672	826699	826726	14						
46	816809	816837	816865	816893	816921	816949	13	826753	826781	826808	826835	826863	826890	13						
47	816977	817005	817033	817061	817089	817117	12	826917	826944	826972	826999	827026	827053	12						
48	817145	817173	817201	817229	817257	817285	11	827080	827108	827135	827162	827190	827217	11						
49	817313	817340	817368	817396	817424	817452	10	827244	827271	827299	827326	827353	827380	10						
50	1.817480	817508	817536	817564	817592	817620	9	1.827407	827435	827462	827489	827516	827544	9						
51	817648	817676	817703	817731	817759	817787	8	827571	827598	827625	827652	827680	827707	8						
52	817815	817843	817871	817899	817927	817955	7	827734	827761	827788	827816	827843	827870	7						
53	817982	818010	818038	818066	818094	818122	6	827897	827924	827952	827979	828006	828033	6						
54	818150	818178	818205	818233	818261	818289	5	828060	828088	828115	828142	828169	828196	5						
55	818317	818345	818373	818401	818428	818456	4	828223	828251	828278	828305	828332	828359	4						
56	818484	818512	818540	818568	818596	818623	3	828386	828414	828441	828468	828495	828522	3						
57	818651	818679	818707	818735	818763	818790	2	828549	828576	828604	828631	828658	828685	2						
58	818818	818846	818874	818902	818930	818957	1	828712	828739	828766	828793	828821	828848	1						
59	818985	819013	819041	819069	819096	819124	0	828875	828902	828929	828956	828983	829010	0						
Minutes	60"	50"	40"	30"	20"	10"	Minutes	60"	50"	40"	30"	20"	10"	Minutes						
Versed Sine Supplement of 35 degrees, or Natural Co-sine of 35 degrees.							Versed Sine Supplement of 34 degrees, or Natural Co-sine of 34 degrees.							Versed Sine Supplement of 34 degrees, or Natural Co-sine of 34 degrees.						
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. { 3 6 8 11 14 17 20 22 25							parts. { 3 6 8 11 14 17 20 22 25							parts. { 3 6 8 11 14 17 20 22 25						

TABLE XXVII.

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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 146 degrees, or Natural Sine of 56 degrees.						Minutes
0'	10'	20'	30'	40'	50'	
1.829038	829065	829092	829119	829146	829173	59
829200	829227	829254	829281	829309	829336	58
829363	829390	829417	829444	829471	829498	57
829525	829552	829579	829606	829634	829661	56
829688	829715	829742	829769	829796	829823	55
829850	829877	829904	829931	829958	829985	54
830012	830039	830066	830093	830120	830147	53
830174	830202	830229	830256	830283	830310	52
830337	830364	830391	830418	830445	830472	51
830499	830526	830553	830580	830607	830634	50
1.830661	830688	830715	830742	830769	830796	49
830823	830850	830877	830904	830931	830957	48
830984	831011	831038	831065	831092	831119	47
831146	831173	831200	831227	831254	831281	46
831308	831335	831362	831389	831416	831443	45
831470	831497	831523	831550	831577	831604	44
831631	831658	831685	831712	831739	831766	43
831793	831820	831847	831873	831900	831927	42
831954	831981	832008	832035	832062	832089	41
832115	832142	832169	832196	832223	832250	40
1.832277	832304	832331	832357	832384	832411	39
832438	832465	832492	832518	832545	832572	38
832599	832626	832653	832680	832707	832733	37
832760	832787	832814	832841	832868	832894	36
832921	832948	832975	833002	833029	833055	35
833082	833109	833136	833163	833189	833216	34
833243	833270	833297	833323	833350	833377	33
833404	833431	833457	833484	833511	833538	32
833565	833591	833618	833645	833671	833698	31
833725	833752	833779	833806	833832	833859	30
1.833886	833913	833939	833966	833993	834020	29
834046	834073	834100	834127	834153	834180	28
834207	834234	834260	834287	834314	834340	27
834367	834394	834421	834447	834474	834501	26
834527	834554	834581	834608	834634	834661	25
834688	834714	834741	834768	834794	834821	24
834848	834875	834901	834928	834955	834981	23
835008	835035	835061	835088	835115	835141	22
835168	835195	835221	835248	835275	835301	21
835328	835355	835381	835408	835435	835461	20
1.835488	835514	835541	835568	835594	835621	19
835648	835674	835701	835728	835754	835781	18
835807	835834	835861	835887	835914	835940	17
835967	835994	836020	836047	836073	836100	16
836127	836153	836180	836206	836233	836260	15
836286	836313	836339	836366	836392	836419	14
836446	836472	836499	836525	836552	836578	13
836605	836632	836658	836685	836711	836738	12
836764	836791	836817	836844	836870	836897	11
836924	836950	836977	837003	837030	837056	10
1.837082	837109	837136	837162	837189	837215	9
837242	837268	837295	837321	837348	837374	8
837401	837427	837454	837480	837507	837533	7
837560	837586	837613	837639	837666	837692	6
837719	837745	837772	837798	837825	837851	5
837878	837904	837930	837957	837983	838010	4
838036	838063	838089	838116	838142	838169	3
838195	838221	838248	838274	838301	838327	2
838354	838380	838406	838433	838459	838486	1
838512	838539	838565	838591	838618	838644	0
60'	50'	40'	30'	20'	10'	Minutes
Versed Sine Supplement of 33 degrees, or Natural Co-sine of 33 degrees.						
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"						
arts. { 3 5 8 11 13 16 19 22 24						

Versed Sine of 147 degrees, or Natural Sine of 57 degrees.						Minutes
0'	10'	20'	30'	40'	50'	
1.838671	838697	838723	838750	838776	838803	59
838829	838855	838882	838908	838935	838961	58
838987	839014	839040	839066	839093	839119	57
839146	839172	839198	839225	839251	839277	56
839304	839330	839356	839383	839409	839435	55
839462	839488	839515	839541	839567	839594	54
839620	839646	839673	839699	839725	839752	53
839778	839804	839830	839857	839883	839909	52
839936	839962	839988	840015	840041	840067	51
840094	840120	840146	840172	840199	840225	50
1.840251	840278	840304	840330	840356	840383	49
840409	840435	840462	840488	840514	840540	48
840567	840593	840619	840645	840672	840698	47
840724	840750	840777	840803	840829	840855	46
840882	840908	840934	840960	840987	841013	45
841039	841065	841091	841118	841144	841170	44
841196	841223	841249	841275	841301	841327	43
841354	841380	841406	841432	841458	841485	42
841511	841537	841563	841589	841616	841642	41
841668	841694	841720	841746	841773	841799	40
1.841825	841851	841877	841903	841930	841956	39
841982	842008	842034	842060	842087	842113	38
842139	842165	842191	842217	842243	842270	37
842296	842322	842348	842374	842400	842426	36
842452	842479	842505	842531	842557	842583	35
842609	842635	842661	842687	842714	842740	34
842766	842792	842818	842844	842870	842896	33
842922	842948	842974	843000	843027	843053	32
843079	843105	843131	843157	843183	843209	31
843235	843261	843287	843313	843339	843365	30
1.843391	843417	843444	843470	843496	843522	29
843548	843574	843600	843626	843652	843678	28
843704	843730	843756	843782	843808	843834	27
843860	843886	843912	843938	843964	843990	26
844016	844042	844068	844094	844120	844146	25
844172	844198	844224	844250	844276	844302	24
844328	844354	844380	844406	844432	844458	23
844484	844510	844536	844562	844588	844614	22
844640	844666	844691	844717	844743	844769	21
844795	844821	844847	844873	844899	844925	20
1.844951	844977	845003	845029	845055	845080	19
845106	845132	845158	845184	845210	845236	18
845262	845288	845314	845340	845365	845391	17
845417	845443	845469	845495	845521	845547	16
845573	845598	845624	845650	845676	845702	15
845728	845754	845780	845805	845831	845857	14
845883	845909	845935	845961	845986	846012	13
846038	846064	846090	846116	846141	846167	12
846193	846219	846245	846271	846296	846322	11
846348	846374	846400	846426	846451	846477	10
1.846503	846529	846555	846580	846606	846632	9
846658	846684	846709	846735	846761	846787	8
846813	846838	846864	846890	846916	846942	7
846967	846993	847019	847045	847070	847096	6
847122	847148	847174	847199	847225	847251	5
847276	847302	847328	847354	847379	847405	4
847431	847456	847482	847508	847534	847560	3
847585	847611	847637	847663	847688	847714	2
847740	847765	847791	847817	847843	847868	1
847894	847920	847945	847971	847997	848022	0
60'	50'	40'	30'	20'	10'	Minutes
Versed Sine Supplement of 32 degrees, or Natural Co-sine of 32 degrees.						
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. { 3 5 8 10 13 16 18 21 23						

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJE

Versed Sine of 148 degrees, or Natural Sine of 58 degrees.							Minutes	Versed Sine of 149 degrees, or Natural Sine of 59 degrees.							Minutes					
0'	10'	20'	30'	40'	50'			0'	10'	20'	30'	40'								
1.848048	848074	848099	848125	848151	848177	59	0	1.857167	857192	857217	857242	857267	85	0						
848202	848228	848254	848279	848305	848331	58	1	857317	857342	857367	857392	857417	85	1						
848356	848382	848408	848433	848459	848485	57	2	857467	857492	857517	857541	857566	85	2						
848510	848536	848562	848587	848613	848638	56	3	857616	857641	857666	857691	857716	85	3						
848664	848690	848715	848741	848767	848792	55	4	857766	857791	857816	857841	857866	85	4						
848818	848844	848869	848895	848920	848946	54	5	857915	857940	857965	857990	858015	85	5						
848972	848997	849023	849049	849074	849100	53	6	858065	858090	858115	858140	858164	85	6						
849125	849151	849177	849202	849228	849253	52	7	858214	858239	858264	858289	858314	85	7						
849279	849305	849330	849356	849381	849407	51	8	858364	858388	858413	858438	858463	85	8						
849433	849458	849484	849509	849535	849560	50	9	858513	858538	858562	858587	858612	85	9						
1.849586	849612	849637	849663	849688	849714	49	10	1.858662	858687	858712	858736	858761	85	10						
849739	849765	849790	849816	849841	849867	48	11	858811	858836	858860	858885	858910	85	11						
849893	849918	849944	849969	849995	850020	47	12	858960	858985	859009	859034	859059	85	12						
850046	850071	850097	850123	850148	850174	46	13	859109	859134	859158	859183	859208	85	13						
850199	850225	850250	850276	850301	850327	45	14	859258	859283	859308	859332	859357	85	14						
850352	850378	850403	850429	850454	850480	44	15	859406	859431	859456	859481	859506	85	15						
850505	850531	850556	850582	850607	850633	43	16	859555	859580	859605	859629	859654	85	16						
850658	850684	850709	850735	850760	850786	42	17	859704	859728	859753	859778	859802	85	17						
850811	850837	850862	850888	850913	850938	41	18	859852	859877	859902	859927	859951	85	18						
850964	850989	851015	851040	851066	851091	40	19	860001	860025	860050	860075	860100	86	19						
1.851117	851142	851168	851193	851218	851244	39	20	1.860149	860174	860199	860223	860248	86	20						
851269	851295	851320	851346	851371	851397	38	21	860297	860322	860347	860372	860396	86	21						
851422	851447	851473	851498	851524	851549	37	22	860446	860470	860495	860520	860545	86	22						
851575	851600	851625	851651	851676	851702	36	23	860594	860619	860643	860668	860693	86	23						
851727	851752	851778	851803	851829	851854	35	24	860742	860767	860791	860816	860841	86	24						
851879	851905	851930	851955	851981	852006	34	25	860890	860915	860939	860964	860989	86	25						
852032	852057	852082	852108	852133	852159	33	26	861038	861063	861087	861112	861137	86	26						
852184	852209	852235	852260	852285	852311	32	27	861186	861210	861235	861260	861284	86	27						
852336	852362	852387	852412	852437	852463	31	28	861334	861358	861383	861408	861432	86	28						
852488	852513	852539	852564	852589	852615	30	29	861481	861506	861531	861555	861580	86	29						
1.852640	852665	852691	852716	852741	852767	29	30	1.861629	861654	861678	861703	861728	86	30						
852792	852817	852843	852868	852893	852919	28	31	861777	861801	861826	861851	861875	86	31						
852944	852969	852995	853020	853045	853071	27	32	861924	861949	861973	861998	862023	86	32						
853096	853121	853146	853172	853197	853222	26	33	862072	862096	862121	862145	862170	86	33						
853248	853273	853298	853323	853349	853374	25	34	862219	862244	862268	862293	862317	86	34						
853399	853424	853450	853475	853500	853526	24	35	862366	862391	862416	862440	862465	86	35						
853551	853576	853601	853627	853652	853677	23	36	862514	862538	862563	862587	862612	86	36						
853702	853728	853753	853778	853803	853829	22	37	862661	862685	862710	862734	862759	86	37						
853854	853879	853904	853929	853955	853980	21	38	862808	862832	862857	862881	862906	86	38						
854005	854030	854056	854081	854106	854131	20	39	862955	862979	863004	863028	863053	86	39						
1.854156	854182	854207	854232	854257	854282	19	40	1.863102	863126	863151	863175	863200	86	40						
854308	854333	854358	854383	854408	854434	18	41	863249	863273	863298	863322	863347	86	41						
854459	854484	854509	854534	854560	854585	17	42	863396	863420	863444	863469	863493	86	42						
854610	854635	854660	854685	854711	854736	16	43	863544	863567	863591	863616	863640	86	43						
854761	854786	854811	854836	854862	854887	15	44	863689	863713	863738	863762	863787	86	44						
854912	854937	854962	854987	855012	855038	14	45	863836	863860	863884	863909	863933	86	45						
855063	855088	855113	855138	855163	855188	13	46	863982	864006	864031	864055	864080	86	46						
855214	855239	855264	855289	855314	855339	12	47	864128	864153	864177	864202	864226	86	47						
855364	855389	855415	855440	855465	855490	11	48	864275	864299	864324	864348	864373	86	48						
855515	855540	855565	855590	855615	855640	10	49	864421	864445	864470	864494	864519	86	49						
1.855665	855691	855716	855741	855766	855791	9	50	1.864567	864592	864616	864640	864665	86	50						
855816	855841	855866	855891	855916	855941	8	51	864713	864738	864762	864787	864811	86	51						
855966	855991	856017	856042	856067	856092	7	52	864860	864884	864908	864933	864957	86	52						
856117	856142	856167	856192	856217	856242	6	53	865006	865030	865054	865078	865103	86	53						
856267	856292	856317	856342	856367	856392	5	54	865151	865176	865200	865224	865249	86	54						
856417	856442	856467	856492	856517	856542	4	55	865297	865322	865346	865370	865394	86	55						
856567	856592	856617	856642	856667	856692	3	56	865443	865467	865492	865516	865540	86	56						
856718	856743	856768	856793	856818	856843	2	57	865589	865613	865637	865662	865686	86	57						
856868	856893	856918	856942	856967	856992	1	58	865734	865758	865783	865807	865831	86	58						
857017	857042	857067	857092	857117	857142	0	59	865880	865904	865928	865953	865977	86	59						
60'	50'	40'	30'	20'	10'	Minutes	Minutes	60'	50'	40'	30'	20'	10'	Minutes						
Versed Sine Supplement of 31 degrees, or Natural Co-sine of 31 degrees.							Versed Sine Supplement of 30 degrees Natural Co-sine of 30 degrees.							Versed Sine Supplement of 30 degrees Natural Co-sine of 30 degrees.						
Proport. 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. 3 5 8 10 13 15 18 20 23							parts. 2 5 7 10 12 15 17 19							parts. 2 5 7 10 12 15 17 19						

VERSSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 150 degrees, or Natural Sine of 60 degrees.						Versed Sine of 151 degrees, or Natural Sine of 61 degrees.					
10'	20'	30'	40'	50'	Minutes	0'	10'	20'	30'	40'	50'
866050	866074	866098	866122	866147	59	1. 874620	874643	874667	874690	874714	874737
866195	866219	866244	866268	866292	58	874761	874784	874808	874831	874855	874878
866340	866365	866389	866413	866437	57	874902	874925	874949	874972	874996	875019
866486	866510	866534	866558	866582	56	875042	875066	875089	875113	875136	875160
866631	866655	866679	866703	866728	55	875183	875207	875230	875254	875277	875300
866776	866800	866824	866848	866873	54	875324	875347	875371	875394	875418	875441
866921	866945	866969	866993	867018	53	875465	875488	875511	875535	875558	875582
867066	867090	867114	867138	867162	52	875605	875628	875652	875675	875699	875722
867211	867235	867259	867283	867307	51	875746	875769	875792	875816	875839	875863
867356	867380	867404	867428	867452	50	875886	875909	875933	875956	875979	876003
867500	867524	867549	867573	867597	49	1. 876026	876050	876073	876096	876120	876143
867645	867669	867693	867717	867741	48	876167	876190	876213	876237	876260	876283
867790	867814	867838	867862	867886	47	876307	876330	876353	876377	876400	876423
867934	867958	867982	868006	868030	46	876447	876470	876493	876517	876540	876563
868079	868103	868127	868151	868175	45	876587	876610	876633	876657	876680	876703
868223	868247	868271	868295	868319	44	876727	876750	876773	876797	876820	876843
868367	868391	868415	868439	868463	43	876867	876890	876913	876937	876960	876983
868511	868535	868559	868583	868607	42	877006	877030	877053	877076	877100	877123
868656	868680	868704	868728	868752	41	877146	877169	877193	877216	877239	877263
868800	868824	868848	868872	868896	40	877286	877309	877332	877356	877379	877402
868944	868968	868992	869016	869040	39	1. 877425	877449	877472	877495	877518	877542
869088	869112	869135	869159	869183	38	877565	877588	877611	877635	877658	877681
869231	869255	869279	869303	869327	37	877704	877728	877751	877774	877797	877820
869375	869399	869423	869447	869471	36	877844	877867	877890	877913	877937	877960
869519	869543	869567	869591	869615	35	877983	878006	878029	878053	878076	878099
869663	869686	869710	869734	869758	34	878122	878145	878169	878192	878215	878238
869806	869830	869854	869878	869902	33	878261	878285	878308	878331	878354	878377
869950	869973	869997	870021	870045	32	878400	878424	878447	878470	878493	878516
870093	870117	870141	870165	870189	31	878539	878563	878586	878609	878632	878655
870236	870260	870284	870308	870332	30	878678	878701	878725	878748	878771	878794
870380	870403	870427	870451	870475	29	1. 878817	878840	878863	878887	878910	878933
870523	870547	870570	870594	870618	28	878956	878979	879002	879025	879048	879071
870666	870690	870714	870737	870761	27	879095	879118	879141	879164	879187	879210
870809	870833	870857	870880	870904	26	879233	879256	879279	879302	879325	879349
870952	870976	871000	871023	871047	25	879372	879395	879418	879441	879464	879487
871095	871119	871142	871166	871190	24	879510	879533	879556	879579	879602	879626
871238	871261	871285	871309	871333	23	879649	879672	879695	879718	879741	879764
871380	871404	871428	871452	871475	22	879787	879810	879833	879856	879879	879902
871523	871547	871571	871594	871618	21	879925	879948	879971	879994	880017	880040
871666	871689	871713	871737	871761	20	880063	880086	880109	880132	880155	880178
871808	871832	871856	871879	871903	19	1. 880201	880224	880247	880270	880293	880316
871951	871974	871998	872022	872046	18	880339	880362	880385	880408	880431	880454
872093	872117	872140	872164	872188	17	880477	880500	880523	880546	880569	880592
872235	872259	872283	872306	872330	16	880615	880638	880661	880684	880707	880730
872378	872401	872425	872449	872472	15	880753	880776	880799	880822	880845	880868
872520	872543	872567	872591	872614	14	880891	880914	880937	880960	880983	881005
872662	872685	872709	872733	872756	13	881028	881051	881074	881097	881120	881143
872804	872827	872851	872875	872898	12	881166	881189	881212	881235	881258	881281
872946	872969	872993	873017	873040	11	881303	881326	881349	881372	881395	881418
873088	873111	873135	873158	873182	10	881441	881464	881487	881510	881533	881556
873229	873253	873277	873300	873324	9	1. 881578	881601	881624	881647	881670	881693
873371	873395	873418	873442	873466	8	881716	881738	881761	881784	881807	881830
873513	873536	873560	873584	873607	7	881853	881876	881898	881921	881944	881967
873654	873678	873701	873725	873749	6	881990	882013	882036	882058	882081	882104
873796	873819	873843	873867	873890	5	882127	882150	882173	882195	882218	882241
873937	873961	873984	874008	874031	4	882264	882287	882309	882332	882355	882378
874079	874102	874126	874149	874173	3	882401	882424	882446	882469	882492	882515
874220	874243	874267	874290	874314	2	882538	882560	882583	882606	882629	882651
874361	874385	874408	874432	874455	1	882674	882697	882720	882743	882766	882788
874502	874526	874549	874573	874596	0	882811	882834	882857	882879	882902	882925
50'	40'	30'	20'	10'	Minutes	60'	50'	40'	30'	20'	10'
Sine Supplement of 29 degrees, or Natural Co-sine of 29 degrees.						Versed Sine Supplement of 28 degrees, or Natural Co-sine of 28 degrees.					
2"	3"	4"	5"	6"	7"	8"	9"	Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"			
5	7	10	12	14	17	19	22	parts. } 2 5 7 9 12 14 16 18 21			

NATURAL CO-SINES IF RADIUS BE REJECTED.

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJ

Minutes							Minutes							Minutes							Minutes																																																																																																																																																																																																																																																																																																																					
Versed Sine of 152 degrees, or Natural Sine of 62 degrees.							Versed Sine of 153 degrees, or Natural Sine of 63 degrees.							Versed Sine of 154 degrees, or Natural Sine of 64 degrees.							Versed Sine of 155 degrees, or Natural Sine of 65 degrees.																																																																																																																																																																																																																																																																																																																					
0' 10' 20' 30' 40' 50'							0' 10' 20' 30' 40'							0' 10' 20' 30' 40'							0' 10' 20' 30' 40'																																																																																																																																																																																																																																																																																																																					
0	1.882948	882970	882993	883016	883039	883061	59	1.891007	891029	891051	891073	891095	891117	891139	891161	891183	891205	891227	891249	891270	891292	891314	891336	891358	891380	891402	891424	891446	891468	891490	891512	891534	891556	891578	891600	891622	891644	891666	891688	891710	891732	891754	891776	891798	891819	891841	891863	891885	891907	891929	891951	891973	891995	892017	892039	892061	892083	892104	892126	892148	892170	892192	892214	892236	892258	892280	892302	892323	892345	892367	892389	892411	892433	892455	892477	892499	892521	892543	892565	892586	892608	892630	892652	892674	892696	892717	892739	892761	892783	892805	892827	892848	892870	892892	892914	892936	892958	892979	893001	893023	893045	893067	893089	893110	893132	893154	893176	893198	893241	893263	893285	893307	893329	893351	893371	893393	893415	893437	893459	893502	893524	893546	893567	893589	893611	893633	893655	893677	893699	893721	893743	893763	893785	893807	893829	893851	893873	893894	893916	893937	893959	893981	894003	894024	894046	894067	894089	894111	894154	894176	894198	894220	894242	894284	894306	894328	894350	894372	894415	894437	894458	894480	894502	894545	894567	894589	894611	894633	894675	894697	894718	894740	894762	894805	894827	894848	894869	894891	894934	894956	894978	894999	895021	895064	895086	895107	895129	895151	895194	895215	895237	895259	895280	895302	895323	895345	895367	895388	895410	895453	895475	895496	895518	895540	895582	895604	895626	895647	895669	895712	895733	895755	895776	895798	895841	895863	895884	895906	895927	895970	895992	896013	896035	896056	896099	896121	896142	896164	896185	896229	896250	896272	896293	896315	896337	896358	896379	896400	896422	896443	896486	896508	896529	896551	896572	896615	896637	896658	896680	896701	896744	896766	896787	896809	896830	896873	896894	896916	896937	896959	897001	897023	897044	897066	897087	897130	897151	897173	897194	897216	897258	897280	897301	897323	897344	897387	897408	897430	897451	897473	897515	897536	897558	897579	897601	897643	897665	897686	897707	897729	897771	897793	897814	897836	897857	897900	897921	897942	897964	897985	898028	898049	898070	898092	898113	898156	898177	898198	898219	898241	898283	898305	898326	898347	898369	898411	898432	898454	898475	898496	898539	898560	898581	898603	898624	898666	898688	898709	898730	898752
1	883084	883107	883130	883152	883175	883198	58	891139	891161	891183	891205	891227	891249	891270	891292	891314	891336	891358	891380	891402	891424	891446	891468	891490	891512	891534	891556	891578	891600	891622	891644	891666	891688	891710	891732	891754	891776	891798	891819	891841	891863	891885	891907	891929	891951	891973	891995	892017	892039	892061	892083	892104	892126	892148	892170	892192	892214	892236	892258	892280	892302	892323	892345	892367	892389	892411	892433	892455	892477	892499	892521	892543	892565	892586	892608	892630	892652	892674	892696	892717	892739	892761	892783	892805	892827	892848	892870	892892	892914	892936	892958	892979	893001	893023	893045	893067	893089	893110	893132	893154	893176	893198	893241	893263	893285	893307	893329	893351	893371	893393	893415	893437	893459	893502	893524	893546	893567	893589	893611	893633	893655	893677	893699	893721	893743	893763	893785	893807	893829	893851	893873	893894	893916	893937	893959	893981	894003	894024	894046	894067	894089	894111	894154	894176	894198	894220	894242	894284	894306	894328	894350	894372	894415	894437	894458	894480	894502	894545	894567	894589	894611	894633	894675	894697	894718	894740	894762	894805	894827	894848	894869	894891	894934	894956	894978	894999	895021	895064	895086	895107	895129	895151	895194	895215	895237	895259	895280	895302	895323	895345	895367	895388	895410	895453	895475	895496	895518	895540	895582	895604	895626	895647	895669	895712	895733	895755	895776	895798	895841	895863	895884	895906	895927	895970	895992	896013	896035	896056	896099	896121	896142	896164	896185	896229	896250	896272	896293	896315	896337	896358	896379	896400	896422	896443	896486	896508	896529	896551	896572	896615	896637	896658	896680	896701	896744	896766	896787	896809	896830	896873	896894	896916	896937	896959	897001	897023	897044	897066	897087	897130	897151	897173	897194	897216	897258	897280	897301	897323	897344	897387	897408	897430	897451	897473	897515	897536	897558	897579	897601	897643	897665	897686	897707	897729	897771	897793	897814	897836	897857	897900	897921	897942	897964	897985	898028	898049	898070	898092	898113	898156	898177	898198	898219	898241	898283	898305	898326	898347	898369	898411	898432	898454	898475	898496	898539	898560	898581	898603	898624	898666	898688	898709	898730	898752						
2	883221	883243	883266	883289	883311	883334	57	891270	891292	891314	891336	891358	891380	891402	891424	891446	891468	891490	891512	891534	891556	891578	891600	891622	891644	891666	891688	891710	891732	891754	891776	891798	891819	891841	891863	891885	891907	891929	891951	891973	891995	892017	892039	892061	892083	892104	892126	892148	892170	892192	892214	892236	892258	892280	892302	892323	892345	892367	892389	892411	892433	892455	892477	892499	892521	892543	892565	892586	892608	892630	892652	892674	892696	892717	892739	892761	892783	892805	892827	892848	892870	892892	892914	892936	892958	892979	893001	893023	893045	893067	893089	893110	893132	893154	893176	893198	893241	893263	893285	893307	893329	893351	893371	893393	893415	893437	893459	893502	893524	893546	893567	893589	893611	893633	893655	893677	893699	893721	893743	893763	893785	893807	893829	893851	893873	893894	893916	893937	893959	893981	894003	894024	894046	894067	894089	894111	894154	894176	894198	894220	894242	894284	894306	894328	894350	894372	894415	894437	894458	894480	894502	894545	894567	894589	894611	894633	894675	894697	894718	894740	894762	894805	894827	894848	894869	894891	894934	894956	894978	894999	895021	895064	895086	895107	895129	895151	895194	895215	895237	895259	895280	895302	895323	895345	895367	895388	895410	895453	895475	895496	895518	895540	895582	895604	895626	895647	895669	895712	895733	895755	895776	895798	895841	895863	895884	895906	895927	895970	895992	896013	896035	896056	896099	896121	896142	896164	896185	896229	896250	896272	896293	896315	896337	896358	896379	896400	896422	896443	896486	896508	896529	896551	896572	896615	896637	896658	896680	896701	896744	896766	896787	896809	896830	896873	896894	896916	896937	896959	897001	897023	897044	897066	897087	897130	897151	897173	897194	897216	897258	897280	897301	897323	897344	897387	897408	897430	897451	897473	897515	897536	897558	897579	897601	897643	897665	897686	897707	897729	897771	897793	897814	897836	897857	897900	897921	897942	897964	897985	898028	898049	898070	898092	898113	898156	898177	898198	898219	898241	898283	898305	898326	898347	898369	898411	898432	898454	898475	898496	898539	898560	898581	898603	898624	898666	898688	898709	898730	898752												
3	883357	883380	883402	883425	883448	883471	56	891402	891424	891446	891468	891490	891512	891534	891556	891578	891600	891622	891644	891666	891688	891710	891732	891754	891776	891798	891819	891841	891863	891885	891907	891929	891951	891973	891995	892017	892039	892061	892083	892104	892126	892148	892170	892192	892214	892236	892258	892280	892302	892323	892345	892367	892389	892411	892433	892455	892477	892499	892521	892543	892565	892586	892608	892630	892652	892674	892696	892717	892739	892761	892783	892805	892827	892848	892870	892892	892914	892936	892958	892979	893001	893023	893045	893067	893089	893110	893132	893154	893176	893198	893241	893263	893285	893307	893329	893351	893371	893393	893415	893437	893459	893502	893524	893546	893567	893589	893611	893633	893655	893677	893699	893721	893743	893763	893785	893807	893829	893851	893873	893894	893916	893937	893959	893981	894003	894024	8940																																																																																																																																																																																																											

NATURAL CO-SINES IF RADIUS BE REJECTED.

L VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 154 degrees, or Natural Sine of 64 degrees.						Minutes	
10"	20"	30"	40"	50"			
898815	898837	898858	898879	898900		59	
898943	898964	898985	899006	899028		58	
899070	899091	899113	899134	899155		57	
899197	899219	899240	899261	899282		56	
899325	899346	899367	899388	899409		55	
899452	899473	899494	899515	899537		54	
899579	899600	899621	899642	899664		53	
899706	899727	899748	899769	899791		52	
899833	899854	899875	899896	899917		51	
899960	899981	900002	900023	900044		50	
900087	900108	900129	900150	900171		49	
900213	900234	900255	900277	900298		48	
900340	900361	900382	900403	900424		47	
900466	900488	900509	900530	900551		46	
900593	900614	900635	900656	900677		45	
900719	900740	900761	900782	900804		44	
900846	900867	900888	900909	900930		43	
900972	900993	901014	901035	901056		42	
901098	901119	901140	901161	901182		41	
901224	901245	901266	901287	901308		40	
901350	901371	901392	901413	901434		39	
901476	901497	901518	901539	901560		38	
901602	901623	901644	901665	901686		37	
901728	901749	901770	901791	901812		36	
901853	901874	901895	901916	901937		35	
901979	902000	902021	902042	902063		34	
902105	902126	902147	902167	902188		33	
902230	902251	902272	902293	902314		32	
902356	902377	902397	902418	902439		31	
902481	902502	902523	902544	902564		30	
902606	902627	902648	902669	902690		29	
902731	902752	902773	902794	902815		28	
902856	902877	902898	902919	902940		27	
902981	903002	903023	903044	903065		26	
903106	903127	903148	903169	903190		25	
903231	903252	903273	903294	903314		24	
903356	903377	903398	903418	903439		23	
903481	903502	903522	903543	903564		22	
903605	903626	903647	903668	903689		21	
903730	903751	903772	903792	903813		20	
903855	903875	903896	903917	903937		19	
903979	904000	904020	904041	904061		18	
904103	904123	904145	904165	904186		17	
904228	904248	904269	904290	904310		16	
904352	904372	904393	904414	904434		15	
904476	904497	904517	904538	904559		14	
904600	904621	904641	904662	904683		13	
904724	904744	904765	904786	904806		12	
904848	904868	904889	904910	904930		11	
904971	904992	905013	905033	905054		10	
905095	905116	905136	905157	905178		9	
905219	905240	905260	905281	905301		8	
905342	905363	905384	905404	905425		7	
905466	905487	905507	905528	905548		6	
905589	905610	905631	905651	905672		5	
905713	905733	905754	905774	905795		4	
905836	905857	905877	905898	905918		3	
905959	905980	906000	906021	906041		2	
906082	906103	906123	906144	906164		1	
906205	906226	906246	906267	906287		0	
50"	40"	30"	20"	10"		Minutes	
Sine Supplement of 25 degrees, or Natural Co-sine of 25 degrees.							
" 2"	3"	4"	5"	6"	7"	8"	9"
4	6	8	10	13	15	17	19

Versed Sine of 155 degrees, or Natural Sine of 65 degrees.						Minutes	
0"	10"	20"	30"	40"	50"		
1. 906308	906328	906349	906369	906390	906410	59	
1 906431	906451	906472	906492	906513	906533	58	
2 906554	906574	906594	906615	906635	906656	57	
3 906676	906697	906717	906738	906758	906778	56	
4 906799	906819	906840	906860	906881	906901	55	
5 906922	906942	906962	906983	907003	907024	54	
6 907044	907064	907085	907105	907126	907146	53	
7 907166	907187	907207	907228	907248	907268	52	
8 907289	907309	907330	907350	907370	907391	51	
9 907411	907431	907452	907472	907493	907513	50	
10 1. 907533	907554	907574	907594	907615	907635	49	
11 907655	907676	907696	907716	907737	907757	48	
12 907777	907798	907818	907838	907859	907879	47	
13 907899	907920	907940	907960	907981	908001	46	
14 908021	908042	908062	908082	908103	908123	45	
15 908143	908163	908184	908204	908224	908245	44	
16 908265	908285	908305	908326	908346	908366	43	
17 908387	908407	908427	908447	908468	908488	42	
18 908508	908528	908549	908569	908589	908609	41	
19 908630	908650	908670	908690	908711	908731	40	
20 1. 908751	908771	908792	908812	908832	908852	39	
21 908872	908893	908913	908933	908953	908974	38	
22 908994	909014	909034	909054	909075	909095	37	
23 909115	909135	909155	909176	909196	909216	36	
24 909236	909256	909276	909297	909317	909337	35	
25 909357	909377	909397	909418	909438	909458	34	
26 909478	909498	909518	909539	909559	909579	33	
27 909599	909619	909639	909659	909680	909700	32	
28 909720	909740	909760	909780	909800	909820	31	
29 909841	909861	909881	909901	909921	909941	30	
30 1. 909961	909981	910001	910022	910042	910062	29	
31 910082	910102	910122	910142	910162	910182	28	
32 910202	910222	910243	910263	910283	910303	27	
33 910323	910343	910363	910383	910403	910423	26	
34 910443	910463	910483	910503	910523	910543	25	
35 910563	910583	910604	910624	910644	910664	24	
36 910684	910704	910724	910744	910764	910784	23	
37 910804	910824	910844	910864	910884	910904	22	
38 910924	910944	910964	910984	911004	911024	21	
39 911044	911064	911084	911104	911124	911144	20	
40 1. 911164	911184	911204	911224	911244	911264	19	
41 911284	911303	911323	911343	911363	911383	18	
42 911403	911423	911443	911463	911483	911503	17	
43 911523	911543	911563	911583	911603	911623	16	
44 911643	911662	911682	911702	911722	911742	15	
45 911762	911782	911802	911822	911842	911862	14	
46 911881	911901	911921	911941	911961	911981	13	
47 912001	912021	912041	912060	912080	912100	12	
48 912120	912140	912160	912180	912200	912219	11	
49 912239	912259	912279	912299	912319	912339	10	
50 1. 912358	912378	912398	912418	912438	912458	9	
51 912477	912497	912517	912537	912557	912577	8	
52 912596	912616	912636	912656	912676	912696	7	
53 912715	912735	912755	912775	912795	912814	6	
54 912834	912854	912874	912894	912913	912933	5	
55 912953	912973	912992	913012	913032	913052	4	
56 913072	913091	913111	913131	913151	913170	3	
57 913190	913210	913230	913249	913269	913289	2	
58 913309	913328	913348	913368	913388	913407	1	
59 913427	913447	913467	913486	913506	913526	0	
60"	50"	40"	30"	20"	10"		Minutes
Versed Sine Supplement of 24 degrees, or Natural Co-sine of 24 degrees.							
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							
parts. } 2 4 6 8 10 12 14 16 18							

NATURAL CO-SINES IF RADIUS BE REJECTED.

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE RE

Minutes		Versed Sine of 156 degrees, or Natural Sine of 66 degrees.						Minutes
		0'	10'	20'	30'	40'	50'	
0	1	913545	913565	913585	913605	913624	913644	59
1	2	913664	913683	913703	913723	913743	913762	58
2	3	913782	913802	913821	913841	913861	913880	57
3	4	913900	913920	913939	913959	913979	913998	56
4	5	914018	914038	914057	914077	914097	914116	55
5	6	914136	914156	914175	914195	914215	914234	54
6	7	914254	914274	914293	914313	914333	914352	53
7	8	914372	914391	914411	914431	914450	914470	52
8	9	914490	914509	914529	914548	914568	914588	51
9	10	914607	914627	914646	914666	914686	914705	50
10	11	914725	914744	914764	914784	914803	914823	49
11	12	914842	914862	914881	914901	914921	914940	48
12	13	914960	914979	914999	915018	915038	915057	47
13	14	915077	915096	915116	915136	915155	915175	46
14	15	915194	915214	915233	915253	915272	915292	45
15	16	915311	915331	915351	915370	915390	915409	44
16	17	915429	915448	915468	915487	915507	915526	43
17	18	915546	915565	915585	915604	915624	915643	42
18	19	915663	915682	915702	915721	915741	915760	41
19	20	915779	915799	915818	915838	915857	915877	40
20	21	915896	915916	915935	915955	915974	915994	39
21	22	916013	916032	916052	916071	916091	916110	38
22	23	916130	916149	916169	916188	916207	916227	37
23	24	916246	916266	916285	916304	916324	916343	36
24	25	916363	916382	916402	916421	916440	916460	35
25	26	916479	916499	916518	916537	916557	916576	34
26	27	916595	916615	916634	916654	916673	916692	33
27	28	916712	916731	916751	916770	916789	916809	32
28	29	916828	916847	916867	916886	916905	916925	31
29	30	916944	916963	916983	917002	917021	917041	30
30	31	917060	917079	917099	917118	917137	917157	29
31	32	917176	917195	917215	917234	917253	917273	28
32	33	917292	917311	917331	917350	917369	917388	27
33	34	917408	917427	917446	917466	917485	917504	26
34	35	917523	917543	917562	917581	917601	917620	25
35	36	917639	917658	917678	917697	917716	917735	24
36	37	917755	917774	917793	917812	917832	917851	23
37	38	917870	917889	917909	917928	917947	917966	22
38	39	917986	918005	918024	918043	918062	918082	21
39	40	918101	918120	918139	918158	918178	918197	20
40	41	918216	918235	918255	918274	918293	918312	19
41	42	918331	918350	918370	918389	918408	918427	18
42	43	918446	918466	918485	918504	918523	918542	17
43	44	918561	918581	918600	918619	918638	918657	16
44	45	918676	918695	918715	918734	918753	918772	15
45	46	918791	918810	918830	918849	918868	918887	14
46	47	918906	918925	918944	918963	918982	919002	13
47	48	919021	919040	919059	919078	919097	919116	12
48	49	919135	919154	919174	919193	919212	919231	11
49	50	919250	919269	919288	919307	919326	919345	10
50	51	919364	919383	919403	919422	919441	919460	9
51	52	919479	919498	919517	919536	919555	919574	8
52	53	919593	919612	919631	919650	919669	919688	7
53	54	919707	919726	919745	919764	919783	919802	6
54	55	919821	919841	919860	919879	919898	919917	5
55	56	919936	919955	919974	919993	920012	920031	4
56	57	920050	920069	920088	920107	920126	920145	3
57	58	920164	920183	920201	920220	920239	920258	2
58	59	920277	920296	920315	920334	920353	920372	1
59		920391	920410	920429	920448	920467	920486	0
Minutes		60'	50'	40'	30'	20'	10'	Minutes
		Versed Sine Supplement of 23 degrees, or Natural Co-sine of 23 degrees.						
Proport.		1"	2"	3"	4"	5"	6"	7"
parts.		1	2	3	4	5	6	7

Minutes		Versed Sine of 157 degrees, or Natural Sine of 67 degrees.					Minutes
		0'	10'	20'	30'	40'	
0	1	920505	920524	920543	920562	920581	59
1	2	920618	920637	920656	920675	920694	58
2	3	920732	920751	920770	920789	920808	57
3	4	920846	920864	920883	920902	920921	56
4	5	920959	920978	920997	921016	921034	55
5	6	921072	921091	921110	921129	921148	54
6	7	921185	921204	921223	921242	921261	53
7	8	921299	921317	921336	921355	921374	52
8	9	921412	921430	921449	921468	921487	51
9	10	921525	921543	921562	921581	921600	50
10	11	921638	921656	921675	921694	921713	49
11	12	921750	921769	921788	921807	921826	48
12	13	921863	921882	921901	921920	921939	47
13	14	921976	921995	922013	922032	922051	46
14	15	922088	922107	922126	922145	922163	45
15	16	922201	922220	922238	922257	922276	44
16	17	922313	922332	922351	922370	922388	43
17	18	922426	922445	922463	922482	922501	42
18	19	922538	922557	922576	922594	922613	41
19	20	922650	922669	922688	922706	922725	40
20	21	922762	922781	922800	922818	922837	39
21	22	922874	922893	922912	922931	922949	38
22	23	922986	923005	923024	923042	923061	37
23	24	923098	923117	923136	923154	923173	36
24	25	923210	923229	923247	923266	923285	35
25	26	923322	923341	923359	923378	923397	34
26	27	923434	923452	923471	923489	923508	33
27	28	923545	923564	923582	923601	923620	32
28	29	923675	923694	923712	923731	923750	31
29	30	923768	923787	923805	923824	923843	30
30	31	923880	923898	923917	923935	923954	29
31	32	923991	924009	924028	924046	924065	28
32	33	924102	924121	924139	924158	924177	27
33	34	924213	924232	924250	924269	924288	26
34	35	924324	924343	924361	924380	924399	25
35	36	924435	924454	924472	924491	924510	24
36	37	924546	924565	924583	924602	924621	23
37	38	924657	924675	924694	924712	924731	22
38	39	924768	924786	924804	924823	924842	21
39	40	924878	924897	924915	924934	924953	20
40	41	924989	925007	925026	925044	925063	19
41	42	925099	925118	925136	925155	925174	18
42	43	925210	925228	925247	925265	925284	17
43	44	925320	925338	925357	925375	925394	16
44	45	925430	925449	925467	925485	925504	15
45	46	925541	925559	925577	925596	925615	14
46	47	925651	925669	925687	925706	925725	13
47	48	925761	925779	925797	925816	925835	12
48	49	925871	925889	925907	925926	925945	11
49	50	925980	925999	926017	926035	926054	10
50	51	926090	926109	926127	926145	926164	9
51	52	926200	926218	926237	926255	926274	8
52	53	926310	926328	926346	926364	926383	7
53	54	926419	926437	926456	926474	926493	6
54	55	926529	926547	926565	926583	926602	5
55	56	926638	926656	926674	926693	926711	4
56	57	926747	926766	926784	926802	926821	3
57	58	926857	926875	926893	926911	926930	2
58	59	926966	926984	927002	927020	927039	1
59		927075	927093	927111	927129	927148	0
Minutes		60'	50'	40'	30'	20'	Minutes
		Versed Sine Supplement of 22 degrees Natural Co-sine of 22 degrees					
Proport.		1"	2"	3"	4"	5"	6"
parts.		1	2	3	4	5	6

NATURAL CO-SINES IF RADIUS BE REJECTED.

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 158 degrees, or Natural Sine of 68 degrees.							Minutes
0"	10"	20"	30"	40"	50"		
1. 927184	927302	927420	927538	927656	927775		59
927293	927311	927329	927347	927365	927383		58
927402	927420	927438	927456	927474	927492		57
927510	927529	927547	927565	927583	927601		56
927619	927637	927655	927673	927692	927710		55
927728	927746	927764	927782	927800	927818		54
927836	927854	927872	927890	927909	927927		53
927945	927963	927981	927999	928017	928035		52
928053	928071	928089	928107	928125	928143		51
928161	928179	928197	928216	928234	928252		50
1. 928270	928288	928306	928324	928342	928360		49
928378	928396	928414	928432	928450	928468		48
928486	928504	928522	928540	928558	928576		47
928594	928612	928630	928648	928666	928684		46
928702	928720	928738	928756	928774	928792		45
928810	928828	928845	928863	928881	928899		44
928917	928935	928953	928971	928989	929007		43
929025	929043	929061	929079	929097	929115		42
929133	929150	929168	929186	929204	929222		41
929240	929258	929276	929294	929312	929330		40
1. 929348	929365	929383	929401	929419	929437		39
929455	929473	929491	929509	929526	929544		38
929562	929580	929598	929616	929634	929652		37
929669	929687	929705	929723	929741	929759		36
929776	929794	929812	929830	929848	929866		35
929884	929901	929919	929937	929955	929973		34
929990	930008	930026	930044	930062	930080		33
930097	930115	930133	930151	930169	930186		32
930204	930222	930240	930258	930275	930293		31
930311	930329	930346	930364	930382	930400		30
1. 930418	930435	930453	930471	930489	930506		29
930524	930541	930559	930577	930595	930613		28
930631	930648	930666	930684	930702	930719		27
930737	930755	930773	930790	930808	930826		26
930843	930861	930879	930897	930914	930932		25
930950	930967	930985	931003	931020	931038		24
931056	931074	931091	931109	931127	931144		23
931162	931180	931197	931215	931233	931250		22
931268	931286	931303	931321	931339	931356		21
931374	931392	931409	931427	931444	931462		20
1. 931480	931497	931515	931533	931550	931568		19
931586	931603	931621	931638	931656	931674		18
931691	931709	931726	931744	931762	931779		17
931797	931814	931832	931850	931867	931885		16
931902	931920	931938	931955	931973	931990		15
932008	932025	932043	932061	932078	932096		14
932113	932131	932148	932166	932183	932201		13
932219	932236	932254	932271	932289	932306		12
932324	932341	932359	932376	932394	932411		11
932429	932446	932464	932482	932499	932517		10
1. 932534	932552	932569	932587	932604	932622		9
932639	932657	932674	932691	932709	932726		8
932744	932761	932779	932796	932814	932831		7
932849	932866	932884	932901	932919	932936		6
932954	932971	932988	933006	933023	933041		5
933058	933076	933093	933110	933128	933145		4
933163	933180	933198	933215	933232	933250		3
933267	933285	933302	933320	933337	933354		2
933372	933389	933407	933424	933441	933459		1
933476	933494	933511	933528	933546	933563		0
60"	50"	40"	30"	20"	10"		Minutes
Versed Sine Supplement of 21 degrees, or Natural Co-sine of 21 degrees.							Minutes
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"							
parts { 2 4 5 7 9 11 13 14 16							
Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Versed Sine of 159 degrees, or Natural Sine of 69 degrees.							Minutes
0"	10"	20"	30"	40"	50"		
1. 933580	933598	933615	933633	933650	933667		59
933685	933702	933719	933737	933754	933771		58
933789	933806	933823	933841	933858	933875		57
933893	933910	933927	933945	933962	933979		56
933997	934014	934031	934049	934066	934083		55
934101	934118	934135	934153	934170	934187		54
934204	934222	934239	934256	934274	934291		53
934308	934325	934343	934360	934377	934395		52
934412	934429	934446	934464	934481	934498		51
934515	934533	934550	934567	934584	934602		50
1. 934619	934636	934653	934671	934688	934705		49
934722	934740	934757	934774	934791	934808		48
934826	934843	934860	934877	934895	934912		47
934929	934946	934963	934981	934998	935015		46
935032	935049	935066	935084	935101	935118		45
935135	935152	935170	935187	935204	935221		44
935238	935255	935273	935290	935307	935324		43
935341	935358	935375	935393	935410	935427		42
935444	935461	935478	935495	935513	935530		41
935547	935564	935581	935598	935615	935632		40
1. 935650	935667	935684	935701	935718	935735		39
935752	935769	935786	935803	935821	935838		38
935855	935872	935889	935906	935923	935940		37
935957	935974	935991	936008	936025	936042		36
936060	936077	936094	936111	936128	936145		35
936162	936179	936196	936213	936230	936247		34
936264	936281	936298	936315	936332	936349		33
936366	936383	936400	936417	936434	936451		32
936468	936485	936502	936519	936536	936553		31
936570	936587	936604	936621	936638	936655		30
1. 936672	936689	936706	936723	936740	936757		29
936774	936791	936808	936825	936842	936859		28
936876	936893	936910	936927	936944	936961		27
936977	936994	937011	937028	937045	937062		26
937079	937096	937113	937130	937147	937164		25
937181	937197	937214	937231	937248	937265		24
937282	937299	937316	937333	937350	937367		23
937383	937400	937417	937434	937451	937468		22
937485	937501	937518	937535	937552	937569		21
937586	937603	937620	937636	937653	937670		20
1. 937687	937704	937721	937737	937754	937771		19
937788	937805	937822	937838	937855	937872		18
937889	937906	937923	937939	937956	937973		17
937990	938007	938023	938040	938057	938074		16
938091	938107	938124	938141	938158	938175		15
938191	938208	938225	938242	938259	938275		14
938292	938309	938326	938342	938359	938376		13
938393	938409	938426	938443	938460	938476		12
938493	938510	938526	938543	938560	938577		11
938593	938610	938627	938644	938660	938677		10
1. 938694	938710	938727	938744	938761	938777		9
938794	938811	938828	938844	938861	938877		8
938894	938911	938928	938944	938961	938978		7
938994	939011	939028	939044	939061	939078		6
939094	939111	939128	939144	939161	939178		5
939194	939211	939227	939244	939261	939277		4
939294	939311	939327	939344	939361	939377		3
939394	939410	939427	939444	939460	939477		2
939493	939510	939527	939543	939560	939576		1
939593	939610	939626	939643	939659	939676		0
60"	50"	40"	30"	20"	10"		Minutes
Versed Sine Supplement of 20 degrees, or Natural Co-sine of 20 degrees.							Minutes
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"							
parts { 2 3 5 7 8 10 12 14 15							

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECT

Versed Sine of 160 degrees, or Natural Sine of 70 degrees.							Minutes	Versed Sine of 161 degrees, or Natural Sine of 71 degrees.							Minutes				
Minutes	0°	10°	20°	30°	40°	50°	Minutes	Minutes	0°	10°	20°	30°	40°	50°	Minutes				
0	1.939693	939709	939726	939742	939759	939776	59	0	1.945519	945534	945550	945566	945582	945598	59				
1	939792	939809	939825	939842	939858	939875	58	1	945613	945629	945645	945661	945677	945693	58				
2	939891	939908	939925	939941	939958	939974	57	2	945708	945724	945739	945755	945771	945787	57				
3	939991	940007	940024	940040	940057	940073	56	3	945802	945818	945834	945850	945865	945881	56				
4	940090	940106	940123	940140	940156	940173	55	4	945897	945912	945928	945944	945960	945975	55				
5	940189	940206	940222	940239	940255	940272	54	5	945991	946007	946023	946038	946054	946070	54				
6	940288	940305	940321	940338	940354	940371	53	6	946085	946101	946117	946132	946148	946164	53				
7	940387	940404	940420	940437	940453	940470	52	7	946180	946195	946211	946227	946242	946258	52				
8	940486	940502	940519	940535	940552	940568	51	8	946274	946289	946305	946321	946336	946352	51				
9	940585	940601	940618	940634	940651	940667	50	9	946368	946383	946399	946415	946430	946446	50				
10	1.940684	940700	940716	940733	940749	940766	49	10	1.946462	946477	946493	946509	946524	946540	49				
11	940782	940799	940815	940831	940848	940864	48	11	946555	946571	946587	946602	946618	946634	48				
12	940881	940897	940914	940930	940946	940963	47	12	946649	946665	946681	946696	946712	946728	47				
13	940979	940996	941012	941028	941045	941061	46	13	946743	946759	946774	946790	946805	946821	46				
14	941078	941094	941110	941127	941143	941160	45	14	946837	946852	946868	946883	946899	946915	45				
15	941176	941192	941209	941225	941242	941258	44	15	946930	946946	946961	946977	946992	947008	44				
16	941274	941291	941307	941323	941340	941356	43	16	947024	947039	947055	947070	947086	947101	43				
17	941372	941389	941405	941422	941438	941454	42	17	947117	947133	947148	947164	947179	947195	42				
18	941471	941487	941503	941520	941536	941552	41	18	947210	947226	947241	947257	947272	947288	41				
19	941569	941585	941601	941618	941634	941650	40	19	947304	947319	947335	947350	947366	947381	40				
20	1.941666	941683	941699	941715	941732	941748	39	20	1.947397	947412	947428	947443	947459	947474	39				
21	941764	941781	941797	941813	941830	941846	38	21	947490	947505	947521	947536	947552	947567	38				
22	941862	941878	941895	941911	941927	941944	37	22	947583	947598	947614	947629	947645	947660	37				
23	941960	941976	941992	942009	942025	942041	36	23	947676	947691	947707	947722	947737	947753	36				
24	942057	942074	942090	942106	942122	942139	35	24	947768	947784	947799	947815	947830	947846	35				
25	942155	942171	942187	942204	942220	942236	34	25	947861	947877	947892	947907	947923	947938	34				
26	942252	942269	942285	942301	942317	942334	33	26	947954	947969	947985	948000	948016	948031	33				
27	942350	942366	942382	942398	942415	942431	32	27	948046	948062	948077	948093	948108	948123	32				
28	942447	942463	942480	942496	942512	942528	31	28	948139	948154	948170	948185	948201	948216	31				
29	942544	942561	942577	942593	942609	942625	30	29	948231	948247	948262	948277	948293	948308	30				
30	1.942641	942658	942674	942690	942706	942722	29	30	1.948324	948339	948354	948370	948385	948401	29				
31	942739	942755	942771	942787	942803	942819	28	31	948416	948431	948447	948462	948477	948493	28				
32	942836	942852	942868	942884	942900	942916	27	32	948508	948523	948539	948554	948570	948585	27				
33	942932	942949	942965	942981	942997	943013	26	33	948600	948616	948631	948646	948662	948677	26				
34	943029	943045	943062	943078	943094	943110	25	34	948692	948708	948723	948738	948754	948769	25				
35	943126	943142	943158	943174	943190	943207	24	35	948784	948799	948815	948830	948845	948861	24				
36	943223	943239	943255	943271	943287	943303	23	36	948876	948891	948907	948922	948937	948952	23				
37	943319	943335	943351	943368	943384	943400	22	37	948968	948983	948998	949014	949029	949044	22				
38	943416	943432	943448	943464	943480	943496	21	38	949059	949075	949090	949105	949121	949136	21				
39	943512	943528	943544	943560	943576	943592	20	39	949151	949166	949182	949197	949212	949227	20				
40	1.943609	943625	943641	943657	943673	943689	19	40	1.949243	949258	949273	949288	949304	949319	19				
41	943705	943721	943737	943753	943769	943785	18	41	949334	949349	949365	949380	949395	949410	18				
42	943801	943817	943833	943849	943865	943881	17	42	949425	949441	949456	949471	949486	949502	17				
43	943897	943913	943929	943945	943961	943977	16	43	949517	949532	949547	949562	949578	949593	16				
44	943993	944009	944025	944041	944057	944073	15	44	949608	949623	949638	949654	949669	949684	15				
45	944089	944105	944121	944137	944153	944169	14	45	949699	949714	949729	949745	949760	949775	14				
46	944185	944201	944217	944233	944249	944265	13	46	949790	949805	949821	949836	949851	949866	13				
47	944281	944297	944313	944329	944344	944360	12	47	949881	949896	949911	949927	949942	949957	12				
48	944376	944392	944408	944424	944440	944456	11	48	949972	949987	950002	950018	950033	950048	11				
49	944472	944488	944504	944520	944536	944552	10	49	950063	950078	950093	950108	950123	950138	10				
50	1.944568	944583	944599	944615	944631	944647	9	50	1.950154	950169	950184	950199	950214	950229	9				
51	944663	944679	944695	944711	944727	944742	8	51	950244	950259	950274	950290	950305	950320	8				
52	944758	944774	944790	944806	944822	944838	7	52	950335	950350	950365	950380	950395	950410	7				
53	944854	944870	944885	944901	944917	944933	6	53	950425	950440	950455	950471	950486	950501	6				
54	944949	944965	944981	944996	950012	950028	5	54	950516	950531	950546	950561	950576	950591	5				
55	950044	950060	950076	950092	950107	950123	4	55	950606	950621	950636	950651	950666	950681	4				
56	950139	950155	950171	950187	950202	950218	3	56	950696	950711	950726	950741	950756	950771	3				
57	950234	950250	950266	950282	950297	950313	2	57	950786	950802	950817	950832	950847	950862	2				
58	950329	950345	950361	950376	950392	950408	1	58	950877	950892	950907	950922	950937	950952	1				
59	950424	950440	950455	950471	950487	950503	0	59	950967	950982	950997	951012	951027	951042	0				
60°							50°	40°							30°	20°	10°		
Versed Sine Supplement of 19 degrees, or Natural Co-sine of 19 degrees.							Minutes	Versed Sine Supplement of 18 degrees, or Natural Co-sine of 18 degrees.							Minutes				
Minutes	1°	2°	3°	4°	5°	6°	7°	8°	9°	Minutes	1°	2°	3°	4°	5°	6°	7°	8°	9°
Proport.	1	2	3	4	5	6	7	8	9	Proport.	1	2	3	4	5	6	7	8	9
parts.	2	3	5	6	8	10	11	13	14	parts.	2	3	5	6	8	9	11	12	14

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 162 degrees, or Natural Sine of 72 degrees.						Minutes
0°	10°	20°	30°	40°	50°	
1. 951057	951071	951086	951101	951116	951131	59
951146	951161	951176	951191	951206	951221	58
951236	951251	951266	951281	951296	951311	57
951326	951341	951356	951371	951386	951401	56
951415	951430	951445	951460	951475	951490	55
951505	951520	951535	951550	951565	951580	54
951594	951609	951624	951639	951654	951669	53
951684	951699	951714	951728	951743	951758	52
951773	951788	951803	951818	951833	951847	51
951862	951877	951892	951907	951922	951937	50
1. 951951	951966	951981	951996	952011	952026	49
952040	952055	952070	952085	952100	952115	48
952129	952144	952159	952174	952189	952203	47
952218	952233	952248	952263	952277	952292	46
952307	952322	952337	952351	952366	952381	45
952396	952411	952425	952440	952455	952470	44
952484	952499	952514	952529	952543	952558	43
952573	952588	952603	952617	952632	952647	42
952661	952676	952691	952706	952720	952735	41
952750	952765	952779	952794	952809	952823	40
1. 952838	952853	952868	952882	952897	952912	39
952926	952941	952956	952971	952985	953000	38
953015	953029	953044	953059	953073	953088	37
953103	953117	953132	953147	953161	953176	36
953191	953205	953220	953235	953249	953264	35
953279	953293	953308	953323	953337	953352	34
953366	953381	953396	953410	953425	953440	33
953454	953469	953483	953498	953513	953527	32
953542	953556	953571	953586	953600	953615	31
953629	953644	953659	953673	953688	953702	30
1. 953717	953732	953746	953761	953775	953790	29
953804	953819	953834	953848	953863	953877	28
953892	953906	953921	953935	953950	953964	27
953979	953994	954008	954023	954037	954052	26
954066	954081	954095	954110	954124	954139	25
954153	954168	954182	954197	954211	954226	24
954240	954255	954269	954284	954298	954313	23
954327	954342	954356	954371	954385	954400	22
954414	954429	954443	954458	954472	954486	21
954501	954515	954530	954544	954559	954573	20
1. 954588	954602	954617	954631	954645	954660	19
954674	954689	954703	954718	954732	954746	18
954761	954775	954790	954804	954818	954833	17
954847	954862	954876	954890	954905	954919	16
954934	954948	954962	954977	954991	955006	15
955020	955034	955049	955063	955077	955092	14
955106	955121	955135	955149	955164	955178	13
955192	955207	955221	955235	955250	955264	12
955278	955293	955307	955321	955336	955350	11
955364	955379	955393	955407	955422	955436	10
1. 955450	955465	955479	955493	955507	955522	9
955536	955550	955565	955579	955593	955608	8
955622	955636	955650	955665	955679	955693	7
955707	955722	955736	955750	955764	955778	6
955793	955807	955822	955836	955850	955864	5
955879	955893	955907	955921	955935	955950	4
955964	955978	955992	956007	956021	956035	3
956049	956063	956078	956092	956106	956120	2
956134	956149	956163	956177	956191	956205	1
956220	956234	956248	956262	956276	956291	0
60°	50°	40°	30°	20°	10°	Minutes
Versed Sine Supplement of 17 degrees, or Natural Co-sine of 17 degrees.						Minutes
Proper. } 1° 2° 3° 4° 5° 6° 7° 8° 9°						
parts. } 1 3 4 6 7 9 10 12 13						

Versed Sine of 163 degrees, or Natural Sine of 73 degrees.						Minutes
0°	10°	20°	30°	40°	50°	
1. 956305	956319	956333	956347	956361	956376	59
956390	956404	956418	956432	956446	956461	58
956475	956489	956503	956517	956531	956545	57
956560	956574	956588	956602	956616	956630	56
956644	956658	956673	956687	956701	956715	55
956729	956743	956757	956771	956785	956799	54
956814	956828	956842	956856	956870	956884	53
956898	956912	956926	956940	956954	956968	52
956983	956997	957011	957025	957039	957053	51
957067	957081	957095	957109	957123	957137	50
1. 957151	957165	957179	957193	957207	957221	49
957235	957249	957263	957277	957291	957305	48
957319	957334	957348	957362	957376	957390	47
957404	957418	957432	957446	957460	957474	46
957487	957501	957515	957529	957543	957557	45
957571	957585	957599	957613	957627	957641	44
957655	957669	957683	957697	957711	957725	43
957739	957753	957767	957781	957795	957809	42
957822	957836	957850	957864	957878	957892	41
957906	957920	957934	957948	957962	957976	40
1. 957990	958003	958017	958031	958045	958059	39
958073	958087	958101	958115	958128	958142	38
958156	958170	958184	958198	958212	958226	37
958239	958253	958267	958281	958295	958309	36
958323	958336	958350	958364	958378	958392	35
958406	958419	958433	958447	958461	958475	34
958489	958502	958516	958530	958544	958558	33
958572	958585	958599	958613	958627	958641	32
958654	958668	958682	958696	958710	958723	31
958737	958751	958765	958778	958792	958806	30
1. 958820	958834	958847	958861	958875	958889	29
958902	958916	958930	958944	958957	958971	28
958985	958999	959012	959026	959040	959054	27
959067	959081	959095	959108	959122	959136	26
959150	959163	959177	959191	959204	959218	25
959232	959246	959259	959273	959287	959300	24
959314	959328	959341	959355	959369	959382	23
959396	959410	959423	959437	959451	959464	22
959478	959492	959505	959519	959533	959546	21
959560	959574	959587	959601	959615	959628	20
1. 959642	959655	959669	959683	959696	959710	19
959724	959737	959751	959764	959778	959792	18
959805	959819	959833	959846	959860	959873	17
959887	959900	959914	959928	959941	959955	16
959968	959982	959996	960009	960023	960036	15
960050	960063	960077	960091	960104	960118	14
960131	960145	960158	960172	960185	960199	13
960212	960226	960240	960253	960267	960280	12
960294	960307	960321	960334	960348	960361	11
960375	960388	960402	960415	960429	960442	10
1. 960456	960469	960483	960496	960510	960523	9
960537	960550	960564	960577	960591	960604	8
960618	960631	960645	960658	960672	960685	7
960698	960712	960725	960739	960752	960766	6
960779	960793	960806	960819	960833	960846	5
960860	960873	960887	960900	960913	960927	4
960940	960954	960967	960981	960994	961007	3
961021	961034	961048	961061	961074	961088	2
961101	961115	961128	961141	961155	961168	1
961181	961195	961208	961222	961235	961248	0
60°	50°	40°	30°	20°	10°	Minutes
Versed Sine Supplement of 16 degrees, or Natural Co-sine of 16 degrees.						Minutes
Proper. } 1° 2° 3° 4° 5° 6° 7° 8° 9°						
parts. } 1 3 4 6 7 8 10 11 13						

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJE

Minutes	Versed Sine of 164 degrees, or Natural Sine of 74 degrees.						Minutes		
	0'	10'	20'	30'	40'	50'			
0	1.961262	961275	961288	961302	961315	961328	59		
1	961342	961355	961369	961382	961395	961409	58		
2	961422	961435	961449	961462	961475	961489	57		
3	961502	961515	961529	961542	961555	961568	56		
4	961582	961595	961608	961622	961635	961648	55		
5	961662	961675	961688	961701	961715	961728	54		
6	961741	961755	961768	961781	961794	961808	53		
7	961821	961834	961847	961861	961874	961887	52		
8	961901	961914	961927	961940	961954	961967	51		
9	961980	961993	962006	962020	962033	962046	50		
10	1.962059	962073	962086	962099	962112	962126	49		
11	962139	962152	962165	962178	962192	962205	48		
12	962218	962231	962244	962258	962271	962284	47		
13	962297	962310	962324	962337	962350	962363	46		
14	962376	962389	962403	962416	962429	962442	45		
15	962455	962468	962482	962495	962508	962521	44		
16	962534	962547	962560	962574	962587	962600	43		
17	962613	962626	962639	962652	962666	962679	42		
18	962692	962705	962718	962731	962744	962757	41		
19	962770	962784	962797	962810	962823	962836	40		
20	962849	962862	962875	962888	962901	962914	39		
21	962928	962941	962954	962967	962980	962993	38		
22	963006	963019	963032	963045	963058	963071	37		
23	963084	963097	963110	963123	963136	963150	36		
24	963163	963176	963189	963202	963215	963228	35		
25	963241	963254	963267	963280	963293	963306	34		
26	963319	963332	963345	963358	963371	963384	33		
27	963397	963410	963423	963436	963449	963462	32		
28	963475	963488	963501	963514	963527	963540	31		
29	963553	963566	963579	963592	963605	963617	30		
30	1.963630	963643	963656	963669	963682	963695	29		
31	963708	963721	963734	963747	963760	963773	28		
32	963786	963799	963812	963825	963837	963850	27		
33	963863	963876	963889	963902	963915	963928	26		
34	963941	963954	963967	963979	963992	964005	25		
35	964018	964031	964044	964057	964070	964083	24		
36	964095	964108	964121	964134	964147	964160	23		
37	964173	964185	964198	964211	964224	964237	22		
38	964250	964263	964275	964288	964301	964314	21		
39	964327	964340	964352	964365	964378	964391	20		
40	1.964404	964417	964429	964442	964455	964468	19		
41	964481	964493	964506	964519	964532	964545	18		
42	964557	964570	964583	964596	964609	964621	17		
43	964634	964647	964660	964672	964685	964698	16		
44	964711	964724	964736	964749	964762	964775	15		
45	964787	964800	964813	964826	964838	964851	14		
46	964864	964877	964889	964902	964915	964927	13		
47	964940	964953	964966	964978	964991	965004	12		
48	965016	965029	965042	965055	965067	965080	11		
49	965093	965105	965118	965131	965143	965156	10		
50	1.965169	965182	965194	965207	965220	965232	9		
51	965245	965258	965270	965283	965296	965308	8		
52	965321	965334	965346	965359	965372	965384	7		
53	965397	965409	965422	965435	965447	965460	6		
54	965473	965485	965498	965511	965523	965536	5		
55	965548	965561	965574	965586	965599	965611	4		
56	965624	965637	965649	965662	965674	965687	3		
57	965700	965712	965725	965737	965750	965763	2		
58	965775	965788	965800	965813	965825	965838	1		
59	965850	965863	965876	965888	965901	965913	0		
	60'	50'	40'	30'	20'	10'			
Versed Sine Supplement of 15 degrees, or Natural Co-sine of 15 degrees.									
Minutes	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	1	3	4	5	6	8	9	10	12

Minutes	Versed Sine of 165 degrees, or Natural Sine of 75 degrees.						Minutes		
	0'	10'	20'	30'	40'	50'			
0	1.965926	965938	965951	965963	965976	965989	59		
1	966001	966014	966026	966039	966051	966063	58		
2	966076	966089	966101	966114	966126	966139	57		
3	966151	966164	966176	966189	966201	966213	56		
4	966226	966239	966251	966264	966276	966289	55		
5	966301	966314	966326	966339	966351	966363	54		
6	966376	966389	966401	966413	966426	966439	53		
7	966451	966463	966476	966488	966501	966513	52		
8	966526	966538	966550	966563	966576	966589	51		
9	966600	966613	966625	966637	966650	966663	50		
10	1.966675	966687	966699	966712	966724	966736	49		
11	966749	966761	966774	966786	966799	966811	48		
12	966823	966836	966848	966861	966873	966886	47		
13	966898	966910	966922	966935	966947	966960	46		
14	966972	966984	966997	967009	967021	967034	45		
15	967046	967058	967071	967083	967096	967108	44		
16	967120	967132	967145	967157	967169	967182	43		
17	967194	967206	967219	967231	967243	967256	42		
18	967268	967280	967292	967305	967317	967330	41		
19	967342	967354	967366	967378	967391	967403	40		
20	1.967415	967427	967440	967452	967464	967477	39		
21	967489	967501	967513	967526	967538	967551	38		
22	967562	967575	967587	967599	967611	967624	37		
23	967636	967648	967660	967673	967685	967698	36		
24	967709	967721	967734	967746	967758	967771	35		
25	967782	967795	967807	967819	967831	967844	34		
26	967856	967868	967880	967892	967905	967917	33		
27	967929	967941	967953	967966	967977	967990	32		
28	968002	968014	968026	968038	968051	968063	31		
29	968075	968087	968099	968111	968124	968136	30		
30	1.968148	968160	968172	968184	968196	968209	29		
31	968220	968233	968245	968257	968269	968282	28		
32	968293	968305	968317	968329	968342	968354	27		
33	968366	968378	968390	968402	968414	968427	26		
34	968438	968450	968462	968475	968487	968500	25		
35	968511	968523	968535	968547	968559	968572	24		
36	968583	968595	968607	968619	968631	968644	23		
37	968656	968668	968680	968692	968705	968717	22		
38	968728	968740	968752	968764	968776	968789	21		
39	968800	968812	968824	968836	968848	968861	20		
40	1.968872	968884	968896	968908	968920	968933	19		
41	968944	968956	968968	968980	968992	969005	18		
42	969016	969028	969040	969052	969064	969077	17		
43	969088	969100	969111	969124	969136	969149	16		
44	969159	969171	969183	969195	969207	969220	15		
45	969231	969243	969255	969267	969279	969292	14		
46	969302	969314	969326	969338	969350	969363	13		
47	969374	969386	969398	969410	969422	969435	12		
48	969445	969457	969469	969481	969493	969506	11		
49	969517	969529	969540	969552	969564	969577	10		
50	1.969588	969600	969612	969623	969635	969648	9		
51	969659	969671	969683	969695	969707	969720	8		
52	969730	969742	969754	969766	969777	969790	7		
53	969801	969813	969825	969837	969849	969861	6		
54	969872	969884	969896	969907	969919	969932	5		
55	969943	969955	969966	969978	969990	970002	4		
56	970014	970025	970037	970049	970061	970073	3		
57	970084	970096	970108	970120	970131	970143	2		
58	970155	970167	970178	970190	970202	970214	1		
59	970225	970237	970249	970261	970272	970284	0		
	60'	50'	40'	30'	20'	10'			
Versed Sine Supplement of 14 degrees, or Natural Co-sine of 14 degrees.									
Minutes	1"	2"	3"	4"	5"	6"	7"	8"	9"
parts.	1	2	4	5	6	7	8	9	12

TURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 166 degrees, or Natural Sine of 76 degrees.						Minutes
0°	10°	20°	30°	40°	50°	
1.970296	970307	970319	970331	970343	970354	59
970366	970378	970389	970401	970413	970425	58
970436	970448	970460	970471	970483	970495	57
970506	970518	970530	970542	970553	970565	56
970577	970588	970600	970612	970623	970635	55
970647	970658	970670	970682	970693	970705	54
970716	970728	970740	970751	970763	970775	53
970786	970798	970810	970821	970833	970844	52
970856	970868	970879	970891	970903	970914	51
970926	970937	970949	970961	970972	970984	50
1.970995	971007	971019	971030	971042	971053	49
971065	971076	971088	971100	971111	971123	48
971134	971146	971157	971169	971181	971192	47
971204	971215	971227	971238	971250	971261	46
971273	971284	971296	971307	971319	971331	45
971342	971354	971365	971377	971388	971400	44
971411	971423	971434	971446	971457	971469	43
971480	971492	971503	971515	971526	971538	42
971549	971561	971572	971584	971595	971607	41
971618	971629	971641	971652	971664	971675	40
1.971687	971698	971710	971721	971733	971744	39
971755	971767	971778	971790	971801	971813	38
971824	971835	971847	971858	971870	971881	37
971893	971904	971915	971927	971938	971950	36
971961	971972	971984	971995	972007	972018	35
972030	972041	972052	972064	972075	972086	34
972098	972109	972120	972132	972143	972154	33
972166	972177	972189	972200	972211	972223	32
972234	972245	972257	972268	972279	972291	31
972302	972313	972325	972336	972347	972359	30
1.972370	972382	972393	972404	972415	972426	29
972438	972449	972460	972472	972483	972494	28
972506	972517	972528	972539	972551	972562	27
972573	972585	972596	972607	972618	972630	26
972641	972652	972663	972675	972686	972697	25
972708	972720	972731	972742	972753	972765	24
972776	972787	972798	972810	972821	972832	23
972843	972854	972866	972877	972888	972899	22
972911	972922	972933	972944	972955	972967	21
972978	972989	973000	973011	973023	973034	20
1.973045	973056	973067	973078	973090	973101	19
973112	973123	973134	973145	973157	973168	18
973179	973190	973201	973212	973223	973235	17
973246	973257	973268	973279	973290	973301	16
973313	973324	973335	973346	973357	973368	15
973379	973390	973401	973413	973424	973435	14
973446	973457	973468	973479	973490	973501	13
973512	973524	973535	973546	973557	973568	12
973579	973590	973601	973612	973623	973634	11
973645	973656	973667	973678	973689	973701	10
1.973712	973723	973734	973745	973756	973767	9
973778	973789	973800	973811	973822	973833	8
973844	973855	973866	973877	973888	973899	7
973910	973921	973932	973943	973954	973965	6
973976	973987	973998	974009	974020	974031	5
974042	974053	974064	974075	974086	974097	4
974108	974119	974130	974141	974151	974162	3
974173	974184	974195	974206	974217	974228	2
974239	974250	974261	974272	974283	974294	1
974305	974316	974326	974337	974348	974359	0
60°	50°	40°	30°	20°	10°	Minutes
Versed Sine Supplement of 13 degrees, or Natural Co-sine of 13 degrees.						
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. { 1 2 3 4 5 6 7 8 9 10						

Versed Sine of 167 degrees, or Natural Sine of 77 degrees.						Minutes
0°	10°	20°	30°	40°	50°	
1.974370	974381	974392	974403	974414	974425	59
974435	974446	974457	974468	974479	974490	58
974501	974512	974523	974533	974544	974555	57
974566	974577	974588	974599	974609	974620	56
974631	974642	974653	974664	974675	974685	55
974696	974707	974718	974729	974740	974750	54
974761	974772	974783	974794	974804	974815	53
974826	974837	974848	974859	974869	974880	52
974891	974902	974912	974923	974934	974945	51
974956	974966	974977	974988	974999	975010	50
1.975020	975031	975042	975053	975063	975074	49
975085	975096	975106	975117	975128	975139	48
975149	975160	975171	975182	975192	975203	47
975214	975224	975235	975246	975257	975267	46
975278	975289	975300	975310	975321	975332	45
975342	975353	975364	975374	975385	975396	44
975406	975417	975428	975439	975449	975460	43
975471	975481	975492	975503	975513	975524	42
975535	975545	975556	975567	975577	975588	41
975598	975609	975620	975630	975641	975652	40
1.975662	975673	975684	975694	975705	975715	39
975726	975737	975747	975758	975768	975779	38
975790	975800	975811	975821	975832	975843	37
975853	975864	975874	975885	975896	975906	36
975917	975927	975938	975948	975959	975970	35
975980	975991	976001	976012	976022	976033	34
976044	976054	976065	976075	976086	976096	33
976107	976117	976128	976138	976149	976159	32
976170	976180	976191	976201	976212	976222	31
976233	976244	976254	976265	976275	976286	30
1.976296	976306	976317	976327	976338	976348	29
976359	976369	976380	976390	976401	976411	28
976422	976432	976443	976453	976464	976474	27
976485	976495	976505	976516	976526	976537	26
976547	976558	976568	976578	976589	976599	25
976610	976620	976631	976641	976651	976662	24
976672	976683	976693	976704	976714	976724	23
976735	976745	976755	976766	976776	976787	22
976797	976807	976818	976828	976839	976849	21
976859	976870	976880	976890	976901	976911	20
1.976921	976932	976942	976953	976963	976973	19
976984	976994	977004	977015	977025	977035	18
977046	977056	977066	977077	977087	977097	17
977108	977118	977128	977138	977149	977159	16
977169	977180	977190	977200	977211	977221	15
977231	977241	977252	977262	977272	977283	14
977293	977303	977313	977324	977334	977344	13
977354	977365	977375	977385	977395	977406	12
977416	977426	977436	977447	977457	977467	11
977477	977488	977498	977508	977518	977528	10
1.977539	977549	977559	977569	977580	977590	9
977600	977610	977620	977631	977641	977651	8
977661	977671	977681	977692	977702	977712	7
977722	977732	977743	977753	977763	977773	6
977783	977793	977804	977814	977824	977834	5
977844	977854	977864	977875	977885	977895	4
977905	977915	977925	977935	977946	977956	3
977966	977976	977986	977996	978006	978016	2
978026	978037	978047	978057	978067	978077	1
978087	978097	978107	978117	978127	978138	0
60°	50°	40°	30°	20°	10°	Minutes
Versed Sine Supplement of 12 degrees, or Natural Co-sine of 12 degrees.						
Proport. { 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. { 1 2 3 4 5 6 7 8 9 10						

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJE

Minutes		Versed Sine of 168 degrees, or Natural Sine of 78 degrees.						Minutes		Minutes		Versed Sine of 169 degrees, or Natural Sine of 79 degrees.						Minutes		Minutes		Versed Sine of 170 degrees, or Natural Sine of 80 degrees.						Minutes		Minutes		Versed Sine of 171 degrees, or Natural Sine of 81 degrees.						Minutes		Minutes		Versed Sine of 172 degrees, or Natural Sine of 82 degrees.						Minutes		Minutes		Versed Sine of 173 degrees, or Natural Sine of 83 degrees.						Minutes		Minutes		Versed Sine of 174 degrees, or Natural Sine of 84 degrees.						Minutes		Minutes		Versed Sine of 175 degrees, or Natural Sine of 85 degrees.						Minutes		Minutes		Versed Sine of 176 degrees, or Natural Sine of 86 degrees.						Minutes		Minutes		Versed Sine of 177 degrees, or Natural Sine of 87 degrees.						Minutes		Minutes		Versed Sine of 178 degrees, or Natural Sine of 88 degrees.						Minutes		Minutes		Versed Sine of 179 degrees, or Natural Sine of 89 degrees.						Minutes		Minutes		Versed Sine of 180 degrees, or Natural Sine of 90 degrees.						Minutes		Minutes		Versed Sine of 181 degrees, or Natural Sine of 91 degrees.						Minutes		Minutes		Versed Sine of 182 degrees, or Natural Sine of 92 degrees.						Minutes		Minutes		Versed Sine of 183 degrees, or Natural Sine of 93 degrees.						Minutes		Minutes		Versed Sine of 184 degrees, or Natural Sine of 94 degrees.						Minutes		Minutes		Versed Sine of 185 degrees, or Natural Sine of 95 degrees.						Minutes		Minutes		Versed Sine of 186 degrees, or Natural Sine of 96 degrees.						Minutes		Minutes		Versed Sine of 187 degrees, or Natural Sine of 97 degrees.						Minutes		Minutes		Versed Sine of 188 degrees, or Natural Sine of 98 degrees.						Minutes		Minutes		Versed Sine of 189 degrees, or Natural Sine of 99 degrees.						Minutes		Minutes		Versed Sine of 190 degrees, or Natural Sine of 100 degrees.						Minutes		Minutes		Versed Sine of 191 degrees, or Natural Sine of 101 degrees.						Minutes		Minutes		Versed Sine of 192 degrees, or Natural Sine of 102 degrees.						Minutes		Minutes		Versed Sine of 193 degrees, or Natural Sine of 103 degrees.						Minutes		Minutes		Versed Sine of 194 degrees, or Natural Sine of 104 degrees.						Minutes		Minutes		Versed Sine of 195 degrees, or Natural Sine of 105 degrees.						Minutes		Minutes		Versed Sine of 196 degrees, or Natural Sine of 106 degrees.						Minutes		Minutes		Versed Sine of 197 degrees, or Natural Sine of 107 degrees.		
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NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 170 degrees, or Natural Sine of 80 degrees.							Minutes
0'	10'	20'	30'	40'	50'		
1. 984808	984816	984825	984833	984841	984850	59	
984858	984867	984875	984883	984892	984901	58	
984909	984917	984925	984934	984942	984951	57	
984959	984967	984976	984984	984992	985001	56	
985009	985017	985026	985034	985043	985051	55	
985059	985068	985076	985084	985093	985101	54	
985109	985118	985126	985134	985143	985151	53	
985159	985168	985176	985184	985193	985201	52	
985209	985217	985226	985234	985242	985251	51	
985259	985267	985276	985284	985292	985301	50	
1. 985309	985317	985325	985334	985342	985350	49	
985358	985367	985375	985383	985391	985400	48	
985408	985416	985424	985433	985441	985449	47	
985457	985466	985474	985482	985490	985499	46	
985507	985515	985523	985531	985540	985548	45	
985556	985564	985572	985581	985589	985597	44	
985605	985613	985622	985630	985638	985646	43	
985654	985663	985671	985679	985687	985695	42	
985703	985712	985720	985728	985736	985744	41	
985752	985761	985769	985777	985785	985793	40	
1. 985801	985809	985818	985826	985834	985842	39	
985850	985858	985866	985874	985883	985891	38	
985899	985907	985915	985923	985931	985939	37	
985947	985956	985964	985972	985980	985988	36	
985996	986004	986012	986020	986028	986036	35	
986045	986053	986061	986069	986077	986085	34	
986093	986101	986109	986117	986125	986133	33	
986141	986149	986157	986165	986173	986181	32	
986189	986197	986205	986213	986222	986230	31	
986238	986246	986254	986262	986270	986278	30	
1. 986286	986294	986302	986310	986318	986326	29	
986334	986342	986350	986358	986366	986373	28	
986381	986389	986397	986405	986413	986421	27	
986429	986437	986445	986453	986461	986469	26	
986477	986485	986493	986501	986509	986517	25	
986525	986533	986540	986548	986556	986564	24	
986572	986580	986588	986596	986604	986612	23	
986620	986628	986635	986643	986651	986659	22	
986667	986675	986683	986691	986699	986706	21	
986714	986722	986730	986738	986746	986754	20	
1. 986762	986769	986777	986785	986793	986801	19	
986809	986817	986824	986832	986840	986848	18	
986856	986864	986871	986879	986887	986895	17	
986903	986911	986918	986926	986934	986942	16	
986950	986957	986965	986973	986981	986989	15	
986996	987004	987012	987020	987028	987035	14	
987043	987051	987059	987066	987074	987082	13	
987090	987097	987105	987113	987121	987129	12	
987136	987144	987152	987160	987167	987175	11	
987183	987190	987198	987206	987214	987221	10	
1. 987229	987237	987245	987252	987260	987268	9	
987275	987283	987291	987299	987306	987314	8	
987322	987329	987337	987345	987352	987360	7	
987368	987375	987383	987391	987398	987406	6	
987414	987421	987429	987437	987444	987452	5	
987460	987467	987475	987483	987490	987498	4	
987506	987513	987521	987529	987536	987544	3	
987551	987559	987567	987574	987582	987590	2	
987597	987605	987612	987620	987628	987635	1	
987643	987650	987658	987666	987673	987681	0	
60'	50'	40'	30'	20'	10'		Minutes
Versed Sine Supplement of 9 degrees, or Natural Co-sine of 9 degrees.							
Propor. { 1"	2"	3"	4"	5"	6"	7"	8"
parts. { 1	2	3	4	5	6	7	8
Versed Sine of 171 degrees, or Natural Sine of 81 degrees.							Minutes
0'	10'	20'	30'	40'	50'		
1. 987688	987696	987704	987711	987719	987726	59	
987734	987741	987749	987757	987764	987772	58	
987779	987787	987794	987802	987809	987817	57	
987824	987832	987840	987847	987855	987862	56	
987870	987877	987885	987892	987900	987907	55	
987915	987922	987930	987937	987945	987952	54	
987960	987967	987975	987982	987990	987997	53	
988005	988012	988020	988027	988035	988042	52	
988050	988057	988065	988072	988080	988087	51	
988094	988102	988109	988117	988124	988132	50	
1. 988139	988147	988154	988162	988169	988176	49	
988184	988191	988199	988206	988214	988221	48	
988228	988236	988243	988251	988258	988265	47	
988273	988280	988288	988295	988302	988310	46	
988317	988325	988332	988339	988347	988354	45	
988362	988369	988376	988384	988391	988398	44	
988406	988413	988420	988428	988435	988442	43	
988450	988457	988465	988472	988479	988487	42	
988494	988501	988509	988516	988523	988531	41	
988538	988545	988552	988560	988567	988574	40	
1. 988582	988589	988596	988604	988611	988618	39	
988626	988633	988640	988647	988655	988662	38	
988669	988676	988684	988691	988698	988706	37	
988713	988720	988727	988735	988742	988749	36	
988756	988764	988771	988778	988785	988793	35	
988800	988807	988814	988822	988829	988836	34	
988843	988850	988858	988865	988872	988879	33	
988886	988894	988901	988908	988915	988923	32	
988930	988937	988944	988951	988958	988966	31	
988973	988980	988987	988994	989002	989009	30	
1. 989016	989023	989030	989037	989045	989052	29	
989059	989066	989073	989080	989087	989095	28	
989102	989109	989116	989123	989130	989137	27	
989145	989152	989159	989166	989173	989180	26	
989187	989194	989201	989208	989216	989223	25	
989230	989237	989244	989251	989258	989265	24	
989272	989279	989286	989294	989301	989308	23	
989315	989322	989329	989336	989343	989350	22	
989357	989364	989371	989378	989385	989392	21	
989399	989406	989414	989421	989428	989435	20	
1. 989442	989449	989456	989463	989470	989477	19	
989484	989491	989498	989505	989512	989519	18	
989526	989533	989540	989547	989554	989561	17	
989568	989575	989582	989589	989596	989603	16	
989610	989617	989624	989631	989637	989644	15	
989651	989658	989665	989672	989679	989686	14	
989693	989700	989707	989714	989721	989728	13	
989735	989742	989749	989755	989762	989769	12	
989776	989783	989790	989797	989804	989811	11	
989818	989825	989831	989838	989845	989852	10	
1. 989859	989866	989873	989880	989887	989893	9	
989900	989907	989914	989921	989928	989935	8	
989942	989948	989955	989962	989969	989976	7	
989983	989989	989996	990003	990010	990017	6	
990024	990030	990037	990044	990051	990058	5	
990065	990071	990078	990085	990092	990099	4	
990105	990112	990119	990126	990133	990139	3	
990146	990153	990160	990167	990173	990180	2	
990187	990194	990200	990207	990214	990221	1	
990228	990234	990241	990248	990255	990261	0	
60'	50'	40'	30'	20'	10'		Minutes
Versed Sine Supplement of 8 degrees, or Natural Co-sine of 8 degrees.							
Propor. { 1"	2"	3"	4"	5"	6"	7"	8"
parts. { 1	1	2	3	4	5	6	6

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJE

Versed Sine of 172 degrees, or Natural Sine of 82 degrees.							Versed Sine of 173 degrees, or Natural Sine of 83 degrees.						
Minutes	0'	10'	20'	30'	40'	50'	Minutes	0'	10'	20'	30'	40'	Minutes
0	1.990268	990275	990282	990288	990295	990302	59	1.992546	992552	992558	992564	992570	0
1	990309	990315	990322	990329	990335	990342	58	992582	992588	992593	992599	992605	1
2	990349	990356	990362	990369	990376	990382	57	992617	992623	992629	992635	992640	2
3	990389	990396	990403	990409	990416	990423	56	992652	992658	992664	992670	992676	3
4	990429	990436	990443	990449	990456	990463	55	992687	992693	992699	992705	992711	4
5	990469	990476	990483	990489	990496	990503	54	992722	992728	992734	992740	992746	5
6	990509	990516	990523	990529	990536	990543	53	992757	992763	992769	992775	992781	6
7	990549	990556	990563	990569	990576	990583	52	992792	992798	992804	992810	992815	7
8	990589	990596	990603	990609	990616	990622	51	992827	992833	992839	992844	992850	8
9	990629	990636	990642	990649	990655	990662	50	992862	992868	992873	992879	992885	9
10	1.990669	990675	990682	990689	990695	990702	49	1.992896	992902	992908	992914	992920	10
11	990708	990715	990721	990728	990735	990741	48	992931	992937	992943	992948	992954	11
12	990748	990754	990761	990768	990774	990781	47	992966	992971	992977	992983	992988	12
13	990787	990794	990800	990807	990814	990820	46	993000	993006	993011	993017	993023	13
14	990827	990833	990840	990846	990853	990859	45	993034	993040	993046	993051	993057	14
15	990866	990872	990879	990886	990892	990899	44	993068	993074	993080	993086	993091	15
16	990905	990912	990918	990925	990931	990938	43	993103	993108	993114	993120	993125	16
17	990944	990951	990957	990964	990970	990977	42	993137	993142	993148	993154	993159	17
18	990983	990990	990996	991002	991009	991016	41	993171	993176	993182	993188	993193	18
19	991022	991029	991035	991042	991048	991055	40	993205	993210	993216	993221	993227	19
20	1.991061	991067	991074	991080	991087	991093	39	1.993238	993244	993250	993255	993261	20
21	991100	991106	991113	991119	991126	991132	38	993272	993278	993283	993289	993295	21
22	991138	991145	991151	991158	991164	991171	37	993306	993311	993317	993323	993328	22
23	991177	991183	991190	991196	991203	991209	36	993339	993345	993350	993356	993362	23
24	991216	991222	991228	991235	991241	991248	35	993373	993378	993384	993389	993395	24
25	991254	991260	991267	991273	991280	991286	34	993406	993412	993417	993423	993428	25
26	991292	991299	991305	991311	991318	991324	33	993439	993445	993451	993456	993462	26
27	991331	991337	991343	991350	991356	991362	32	993473	993478	993484	993489	993495	27
28	991369	991375	991381	991388	991394	991401	31	993506	993511	993517	993522	993528	28
29	991407	991413	991420	991426	991432	991439	30	993539	993544	993550	993555	993561	29
30	1.991445	991451	991458	991464	991470	991476	29	1.993572	993577	993583	993588	993594	30
31	991483	991489	991495	991502	991508	991514	28	993605	993610	993616	993621	993627	31
32	991521	991527	991533	991540	991546	991552	27	993638	993643	993648	993654	993659	32
33	991558	991565	991571	991577	991584	991590	26	993670	993676	993681	993687	993692	33
34	991596	991602	991609	991615	991621	991627	25	993703	993708	993714	993719	993725	34
35	991634	991640	991646	991652	991659	991665	24	993735	993741	993746	993752	993757	35
36	991671	991677	991684	991690	991696	991702	23	993768	993773	993779	993784	993790	36
37	991709	991715	991721	991727	991733	991740	22	993800	993806	993811	993816	993822	37
38	991746	991752	991758	991765	991771	991777	21	993833	993838	993843	993849	993854	38
39	991783	991789	991796	991802	991808	991814	20	993865	993870	993876	993881	993886	39
40	1.991820	991827	991833	991839	991845	991851	19	1.993897	993902	993908	993913	993918	40
41	991857	991864	991870	991876	991882	991888	18	993929	993934	993940	993945	993950	41
42	991894	991901	991907	991913	991919	991925	17	993961	993966	993972	993977	993982	42
43	991931	991938	991944	991950	991956	991962	16	993993	993998	994003	994009	994014	43
44	991968	991974	991980	991987	991993	991999	15	994025	994030	994035	994040	994046	44
45	992005	992011	992017	992023	992029	992036	14	994056	994062	994067	994072	994077	45
46	992042	992048	992054	992060	992066	992072	13	994088	994093	994098	994104	994109	46
47	992078	992084	992090	992096	992102	992109	12	994120	994125	994130	994135	994140	47
48	992115	992121	992127	992133	992139	992145	11	994151	994156	994161	994167	994172	48
49	992151	992157	992163	992169	992175	992181	10	994182	994188	994193	994198	994203	49
50	1.992187	992193	992200	992206	992212	992218	9	1.994214	994219	994224	994229	994234	50
51	992224	992230	992236	992242	992248	992254	8	994245	994250	994255	994260	994266	51
52	992260	992266	992272	992278	992284	992290	7	994276	994281	994286	994291	994297	52
53	992296	992302	992308	992314	992320	992326	6	994307	994312	994317	994322	994328	53
54	992332	992338	992344	992350	992356	992362	5	994338	994343	994348	994353	994359	54
55	992368	992374	992380	992386	992392	992398	4	994369	994374	994379	994384	994390	55
56	992404	992410	992416	992422	992428	992433	3	994400	994405	994410	994415	994420	56
57	992439	992445	992451	992457	992463	992469	2	994430	994435	994441	994446	994451	57
58	992475	992481	992487	992493	992499	992505	1	994461	994466	994471	994476	994481	58
59	992511	992517	992522	992528	992534	992540	0	994491	994497	994502	994507	994512	59
Minutes	60'	50'	40'	30'	20'	10'	Minutes	60'	50'	40'	30'	20'	Minutes
Versed Sine Supplement of 7 degrees, or Natural Co-sine of 7 degrees.							Versed Sine Supplement of 6 degrees, Natural Co-sine of 6 degrees.						
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"							Proport. } 1" 2" 3" 4" 5" 6" 7"						
parts. } 1 1 2 3 3 4 5 5 6							parts. } 1 1 2 2 3 3 4						

NATURAL CO-SINES IF RADIUS BE REJECTED.

URAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 174 degrees, or Natural Sine of 84 degrees.							Minutes	
0"	10"	20"	30"	40"	50"			
994522	994527	994532	994537	994542	994547	59	1	
994552	994557	994562	994567	994572	994577	58	2	
994583	994588	994593	994598	994603	994608	57	3	
994613	994618	994623	994628	994633	994638	56	4	
994643	994648	994653	994658	994663	994668	55	5	
994673	994678	994683	994688	994693	994698	54	6	
994703	994708	994713	994718	994723	994728	53	7	
994733	994738	994743	994748	994753	994757	52	8	
994762	994767	994772	994777	994782	994787	51	9	
994792	994797	994802	994807	994812	994817	50	10	
994822	994827	994832	994837	994842	994846	49	11	
994851	994856	994861	994866	994871	994876	48	12	
994881	994886	994891	994895	994900	994905	47	13	
994910	994915	994920	994925	994930	994934	46	14	
994939	994944	994949	994954	994959	994964	45	15	
994969	994973	994978	994983	994988	994993	44	16	
994998	995002	995007	995012	995017	995022	43	17	
995027	995031	995036	995041	995046	995051	42	18	
995056	995060	995065	995070	995075	995080	41	19	
995084	995089	995094	995099	995104	995108	40	20	
995113	995118	995123	995128	995132	995137	39	21	
995142	995147	995151	995156	995161	995166	38	22	
995170	995175	995180	995185	995189	995194	37	23	
995199	995204	995208	995213	995218	995223	36	24	
995227	995232	995237	995242	995246	995251	35	25	
995256	995260	995265	995270	995275	995279	34	26	
995284	995289	995293	995298	995303	995307	33	27	
995312	995317	995322	995326	995331	995336	32	28	
995340	995345	995350	995354	995359	995364	31	29	
995368	995373	995378	995382	995387	995392	30	30	
995396	995401	995405	995410	995415	995419	29	31	
995424	995429	995433	995438	995443	995447	28	32	
995452	995456	995461	995466	995470	995475	27	33	
995479	995484	995489	995493	995498	995502	26	34	
995507	995512	995516	995521	995525	995530	25	35	
995535	995539	995544	995548	995553	995557	24	36	
995562	995567	995571	995576	995580	995585	23	37	
995589	995594	995598	995603	995607	995612	22	38	
995617	995621	995626	995630	995635	995639	21	39	
995644	995648	995653	995657	995662	995666	20	40	
995671	995675	995680	995684	995689	995693	19	41	
995698	995702	995707	995711	995716	995720	18	42	
995725	995729	995734	995738	995743	995747	17	43	
995752	995756	995760	995765	995769	995774	16	44	
995778	995783	995787	995792	995796	995800	15	45	
995805	995809	995814	995818	995823	995827	14	46	
995832	995836	995840	995845	995849	995854	13	47	
995858	995862	995867	995871	995876	995880	12	48	
995884	995889	995893	995898	995902	995906	11	49	
995911	995915	995919	995924	995928	995933	10	50	
995937	995941	995946	995950	995954	995959	9	51	
995963	995967	995972	995976	995981	995985	8	52	
995989	995994	995998	996002	996007	996011	7	53	
996015	996019	996024	996028	996032	996037	6	54	
996041	996045	996050	996054	996058	996063	5	55	
996067	996071	996075	996080	996084	996088	4	56	
996093	996097	996101	996105	996110	996114	3	57	
996118	996123	996127	996131	996135	996140	2	58	
996144	996148	996152	996157	996161	996165	1	59	
996169	996174	996178	996182	996186	996190	0	60	
30"	50"	40"	30"	20"	10"	Minutes		
Versed Sine Supplement of 5 degrees, or Natural Co-sine of 5 degrees.								
prop. { 1"	2"	3"	4"	5"	6"	7"	8"	9"
tab. { 0	1	1	2	2	3	3	4	4

Versed Sine of 175 degrees, or Natural Sine of 85 degrees.							Minutes	
0"	10"	20"	30"	40"	50"			
1. 996195	996199	996203	996207	996212	996216	59	1	
996220	996224	996228	996233	996237	996241	58	2	
996245	996249	996254	996258	996262	996266	57	3	
996270	996275	996279	996283	996287	996291	56	4	
996295	996300	996304	996308	996312	996316	55	5	
996320	996325	996329	996333	996337	996341	54	6	
996345	996349	996354	996358	996362	996366	53	7	
996370	996374	996378	996382	996387	996391	52	8	
996395	996399	996403	996407	996411	996415	51	9	
996419	996424	996428	996432	996436	996440	50	10	
1. 996444	996448	996452	996456	996460	996464	49	11	
996468	996473	996477	996481	996485	996489	48	12	
996493	996497	996501	996505	996509	996513	47	13	
996517	996521	996525	996529	996533	996537	46	14	
996541	996545	996549	996553	996557	996561	45	15	
996566	996570	996574	996578	996582	996586	44	16	
996590	996594	996598	996602	996606	996610	43	17	
996614	996617	996621	996625	996629	996633	42	18	
996637	996641	996645	996649	996653	996657	41	19	
996661	996665	996669	996673	996677	996681	40	20	
1. 996685	996689	996693	996697	996701	996705	39	21	
996709	996712	996716	996720	996724	996728	38	22	
996732	996736	996740	996744	996748	996752	37	23	
996756	996759	996763	996767	996771	996775	36	24	
996779	996783	996787	996791	996794	996798	35	25	
996802	996806	996810	996814	996818	996822	34	26	
996825	996829	996833	996837	996841	996845	33	27	
996848	996852	996856	996860	996864	996868	32	28	
996872	996875	996879	996883	996887	996891	31	29	
996894	996898	996902	996906	996910	996914	30	30	
1. 996917	996921	996925	996929	996933	996936	29	31	
996940	996944	996948	996951	996955	996958	28	32	
996963	996967	996970	996974	996978	996982	27	33	
996985	996989	996993	996997	997000	997004	26	34	
997008	997012	997015	997019	997023	997027	25	35	
997030	997034	997038	997042	997045	997049	24	36	
997053	997056	997060	997064	997068	997071	23	37	
997075	997079	997082	997086	997090	997094	22	38	
997097	997101	997105	997108	997112	997116	21	39	
997119	997123	997127	997130	997134	997138	20	40	
1. 997141	997145	997149	997152	997156	997160	19	41	
997163	997167	997171	997174	997178	997181	18	42	
997185	997189	997192	997196	997200	997203	17	43	
997207	997211	997214	997218	997221	997225	16	44	
997229	997232	997236	997239	997243	997247	15	45	
997250	997254	997257	997261	997265	997268	14	46	
997272	997275	997279	997282	997286	997290	13	47	
997293	997297	997300	997304	997307	997311	12	48	
997314	997318	997322	997325	997329	997332	11	49	
997336	997339	997343	997346	997350	997353	10	50	
1. 997357	997360	997364	997367	997371	997375	9	51	
997378	997382	997385	997388	997392	997396	8	52	
997399	997403	997406	997409	997413	997416	7	53	
997420	997423	997427	997430	997434	997437	6	54	
997441	997444	997448	997451	997455	997458	5	55	
997462	997465	997468	997472	997475	997479	4	56	
997482	997486	997489	997493	997496	997499	3	57	
997503	997506	997510	997513	997516	997520	2	58	
997523	997527	997530	997534	997537	997540	1	59	
997544	997547	997551	997554	997557	997561	0	60	
60"	50"	40"	30"	20"	10"	Minutes		
Versed Sine Supplement of 4 degrees, or Natural Co-sine of 4 degrees.								
Propor. { 1"	2"	3"	4"	5"	6"	7"	8"	9"
parts. { 0	1	1	2	2	3	3	4	4

NATURAL VERSED SINES; OR NATURAL SINES IF RADIUS BE REJECT

Minutes		Versed Sine of 176 degrees, or Natural Sine of 86 degrees.						Minutes								
		0°	10°	20°	30°	40°	50°									
0	1	997564	997567	997571	997574	997578	997581	59	0	1	998630	998632	998635	998637	998640	998642
1	1	997584	997588	997591	997594	997598	997601	58	1	1	998645	998647	998650	998652	998655	998657
2	1	997604	997608	997611	997615	997618	997621	57	2	1	998660	998662	998665	998667	998670	998672
3	1	997625	997628	997631	997635	997638	997641	56	3	1	998675	998677	998680	998682	998685	998687
4	1	997645	997648	997651	997655	997658	997661	55	4	1	998690	998692	998695	998697	998700	998702
5	1	997664	997668	997671	997674	997678	997681	54	5	1	998705	998707	998710	998712	998715	998717
6	1	997684	997688	997691	997694	997697	997701	53	6	1	998719	998722	998724	998727	998729	998732
7	1	997704	997707	997711	997714	997717	997720	52	7	1	998734	998736	998739	998741	998744	998746
8	1	997724	997727	997730	997733	997737	997740	51	8	1	998749	998751	998753	998756	998758	998761
9	1	997743	997747	997750	997753	997756	997760	50	9	1	998763	998766	998768	998770	998773	998775
10	1	997763	997766	997769	997772	997776	997779	49	10	1	998778	998780	998782	998785	998787	998790
11	1	997781	997785	997789	997792	997795	997798	48	11	1	998792	998794	998797	998799	998801	998804
12	1	997801	997805	997808	997811	997814	997818	47	12	1	998806	998809	998811	998813	998816	998818
13	1	997821	997824	997827	997830	997833	997837	46	13	1	998820	998823	998825	998827	998830	998832
14	1	997840	997843	997846	997849	997853	997856	45	14	1	998834	998837	998839	998841	998844	998846
15	1	997860	997862	997865	997868	997872	997875	44	15	1	998848	998851	998853	998855	998858	998860
16	1	997878	997881	997884	997887	997891	997894	43	16	1	998862	998865	998867	998869	998872	998874
17	1	997897	997900	997903	997906	997909	997912	42	17	1	998876	998878	998881	998883	998886	998888
18	1	997916	997919	997922	997925	997928	997931	41	18	1	998890	998892	998894	998897	998899	998902
19	1	997934	997937	997941	997944	997947	997950	40	19	1	998904	998906	998908	998910	998913	998915
20	1	997953	997956	997959	997962	997965	997968	39	20	1	998917	998919	998922	998924	998927	998929
21	1	997971	997975	997978	997981	997984	997987	38	21	1	998931	998933	998935	998937	998940	998942
22	1	997990	997993	997996	997999	998002	998005	37	22	1	998944	998946	998948	998951	998953	998955
23	1	998008	998011	998015	998018	998021	998024	36	23	1	998957	998959	998962	998964	998967	998969
24	1	998027	998030	998033	998036	998039	998042	35	24	1	998971	998973	998975	998977	998980	998982
25	1	998045	998048	998051	998054	998057	998060	34	25	1	998984	998986	998988	998990	998993	998995
26	1	998063	998066	998069	998072	998075	998078	33	26	1	998997	998999	999001	999003	999005	999008
27	1	998081	998084	998087	998090	998093	998096	32	27	1	999010	999012	999014	999016	999018	999021
28	1	998099	998102	998105	998108	998111	998114	31	28	1	999023	999025	999027	999029	999031	999034
29	1	998117	998120	998123	998126	998129	998132	30	29	1	999035	999038	999040	999042	999044	999047
30	1	998135	998138	998141	998144	998147	998150	29	30	1	999048	999050	999052	999055	999057	999060
31	1	998153	998156	998159	998161	998164	998167	28	31	1	999061	999063	999065	999067	999069	999072
32	1	998170	998173	998176	998179	998182	998185	27	32	1	999073	999076	999078	999080	999082	999085
33	1	998188	998191	998194	998196	998199	998202	26	33	1	999086	999088	999090	999092	999094	999097
34	1	998205	998208	998211	998214	998217	998220	25	34	1	999099	999101	999103	999104	999107	999109
35	1	998223	998226	998228	998231	998234	998237	24	35	1	999111	999113	999115	999117	999119	999122
36	1	998240	998243	998246	998248	998251	998254	23	36	1	999123	999125	999127	999129	999131	999134
37	1	998257	998260	998263	998266	998268	998271	22	37	1	999135	999137	999139	999141	999143	999146
38	1	998274	998277	998280	998283	998286	998288	21	38	1	999147	999149	999151	999153	999155	999158
39	1	998291	998294	998297	998300	998303	998305	20	39	1	999159	999161	999163	999165	999167	999170
40	1	998308	998311	998314	998317	998319	998322	19	40	1	999171	999173	999175	999177	999179	999182
41	1	998325	998328	998331	998333	998336	998339	18	41	1	999183	999185	999187	999189	999190	999193
42	1	998342	998345	998347	998350	998353	998356	17	42	1	999194	999196	999198	999200	999202	999205
43	1	998359	998361	998364	998367	998370	998372	16	43	1	999206	999208	999210	999212	999214	999217
44	1	998375	998378	998381	998383	998386	998389	15	44	1	999218	999219	999221	999223	999225	999227
45	1	998392	998394	998397	998400	998403	998405	14	45	1	999229	999231	999233	999235	999237	999239
46	1	998408	998411	998414	998416	998419	998422	13	46	1	999240	999242	999244	999246	999248	999250
47	1	998425	998427	998430	998433	998435	998438	12	47	1	999252	999254	999255	999257	999259	999261
48	1	998441	998443	998446	998449	998451	998454	11	48	1	999263	999265	999267	999268	999270	999272
49	1	998457	998460	998462	998465	998468	998470	10	49	1	999274	999276	999278	999280	999281	999283
50	1	998473	998476	998478	998481	998484	998486	9	50	1	999285	999287	999289	999291	999292	999294
51	1	998489	998491	998494	998497	998500	998502	8	51	1	999296	999298	999300	999301	999303	999305
52	1	998505	998508	998510	998513	998516	998518	7	52	1	999307	999309	999311	999312	999314	999316
53	1	998521	998524	998526	998529	998531	998534	6	53	1	999318	999319	999321	999323	999325	999327
54	1	998537	998539	998542	998545	998547	998550	5	54	1	999328	999330	999332	999334	999335	999337
55	1	998552	998555	998558	998560	998563	998565	4	55	1	999339	999341	999343	999344	999346	999348
56	1	998568	998571	998573	998576	998578	998581	3	56	1	999350	999351	999353	999355	999357	999359
57	1	998583	998586	998588	998591	998594	998596	2	57	1	999360	999362	999363	999365	999367	999369
58	1	998599	998601	998604	998607	998609	998612	1	58	1	999370	999372	999374	999375	999377	999379
59	1	998614	998617	998619	998622	998624	998627	0	59	1	999381	999382	999384	999386	999387	999389
60		50	40	30	20	10			60		50	40	30	20		
Minutes		Versed Sine Supplement of 3 degrees, or Natural Co-sine of 3 degrees.						Minutes								
		0°	10°	20°	30°	40°	50°									
0	1	999135	999138	999141	999144	999147	999150	59	0	1	999285	999287	999289	999291	999292	999294
1	1	999153	999156	999159	999161	999164	999167	58	1	1	999296	999298	999300	999301	999303	999305
2	1	999170	999173	999176	999179	999182	999185	57	2	1	999307	999309	999311	999312	999314	999316
3	1	999188	999191	999194	999196	999199	999202	56	3	1	999318	999319	999321	999323	999325	999327
4	1	999205	999208	999211	999214	999217	999220	55	4	1	999328	999330	999332	999334	999335	

ATURAL VERSED SINES, OR NATURAL SINES IF RADIUS BE REJECTED.

Versed Sine of 178 degrees, or Natural Sine of 88 degrees.						Minutes
0°	10°	20°	30°	40°	50°	
1.999391	999393	999394	999396	999398	999399	59
999401	999403	999404	999406	999408	999409	58
999411	999413	999414	999416	999418	999419	57
999421	999423	999424	999426	999427	999429	56
999431	999432	999434	999436	999437	999439	55
999441	999442	999444	999445	999447	999448	54
999450	999452	999453	999455	999457	999458	53
999460	999461	999463	999465	999466	999468	52
999469	999471	999472	999474	999476	999477	51
999479	999480	999482	999483	999485	999487	50
1.999488	999490	999491	999493	999494	999496	49
999497	999499	999500	999502	999504	999505	48
999507	999508	999510	999511	999513	999514	47
999516	999517	999519	999520	999522	999523	46
999525	999526	999528	999529	999531	999532	45
999534	999535	999537	999538	999539	999541	44
999542	999544	999545	999547	999548	999550	43
999551	999553	999554	999556	999557	999558	42
999560	999561	999563	999564	999566	999567	41
999568	999570	999571	999573	999574	999576	40
1.999577	999578	999580	999581	999583	999584	39
999585	999587	999588	999590	999591	999592	38
999594	999595	999596	999598	999599	999601	37
999602	999603	999605	999606	999607	999609	36
999610	999611	999613	999614	999616	999617	35
999618	999620	999621	999622	999624	999625	34
999626	999628	999629	999630	999631	999633	33
999634	999635	999637	999638	999639	999641	32
999642	999643	999645	999646	999647	999648	31
999650	999651	999652	999654	999655	999656	30
1.999657	999659	999660	999661	999662	999664	29
999665	999666	999667	999669	999670	999671	28
999672	999674	999675	999676	999677	999679	27
999680	999681	999682	999683	999685	999686	26
999687	999688	999690	999691	999692	999693	25
999694	999696	999697	999698	999699	999700	24
999701	999703	999704	999705	999706	999707	23
999709	999710	999711	999712	999713	999714	22
999716	999717	999718	999719	999720	999721	21
999722	999724	999725	999726	999727	999728	20
1.999729	999730	999731	999733	999734	999735	19
999736	999737	999738	999739	999740	999742	18
999743	999744	999745	999746	999747	999748	17
999749	999750	999751	999752	999753	999755	16
999756	999757	999758	999759	999760	999761	15
999762	999763	999764	999765	999766	999767	14
999768	999769	999770	999771	999772	999774	13
999775	999776	999777	999778	999779	999780	12
999781	999782	999783	999784	999785	999786	11
999787	999788	999789	999790	999791	999792	10
1.999793	999794	999795	999796	999797	999798	9
999799	999800	999801	999802	999802	999803	8
999804	999805	999806	999807	999808	999809	7
999810	999811	999812	999813	999814	999815	6
999816	999817	999818	999818	999819	999820	5
999821	999822	999823	999824	999825	999826	4
999827	999828	999829	999829	999830	999831	3
999832	999833	999834	999835	999836	999836	2
999837	999838	999839	999840	999841	999842	1
999843	999843	999844	999845	999846	999847	0
60°	50°	40°	30°	20°	10°	Minutes
Versed Sine Supplement of 1 degree, or Natural Co-sine of 1 degree.						
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. } 0 0 0 1 1 1 1 1 1						

Versed Sine of 179 degrees, or Natural Sine of 89 degrees.						Minutes
0°	10°	20°	30°	40°	50°	
1.999848	999849	999849	999850	999851	999852	59
999853	999854	999854	999855	999856	999857	58
999858	999858	999859	999860	999861	999862	57
999863	999863	999864	999865	999866	999867	56
999867	999868	999869	999870	999870	999871	55
999872	999873	999874	999874	999875	999876	54
999877	999877	999878	999879	999880	999880	53
999881	999882	999883	999883	999884	999885	52
999886	999886	999887	999888	999889	999889	51
999890	999891	999891	999892	999893	999894	50
999894	999895	999896	999896	999897	999898	49
999898	999899	999900	999900	999901	999902	48
999903	999903	999904	999905	999905	999906	47
999907	999907	999908	999909	999909	999910	46
999910	999911	999912	999912	999913	999914	45
999914	999915	999916	999916	999917	999917	44
999918	999919	999919	999920	999921	999921	43
999922	999922	999923	999924	999924	999925	42
999925	999926	999927	999927	999928	999928	41
999929	999929	999930	999931	999931	999932	40
1.999932	999933	999933	999934	999935	999935	39
999936	999936	999937	999937	999938	999938	38
999939	999939	999940	999941	999941	999942	37
999942	999943	999943	999944	999944	999945	36
999945	999946	999946	999947	999947	999948	35
999948	999949	999949	999950	999950	999951	34
999951	999952	999952	999953	999953	999953	33
999954	999954	999955	999955	999956	999956	32
999957	999957	999958	999958	999958	999959	31
999959	999960	999960	999961	999961	999961	30
1.999962	999962	999963	999963	999964	999964	29
999964	999965	999965	999966	999966	999966	28
999967	999967	999967	999968	999968	999969	27
999969	999970	999970	999970	999971	999971	26
999971	999972	999972	999972	999973	999973	25
999974	999974	999974	999975	999975	999975	24
999976	999976	999976	999977	999977	999977	23
999978	999978	999978	999979	999979	999979	22
999980	999980	999980	999980	999981	999981	21
999981	999982	999982	999982	999983	999983	20
1.999983	999983	999984	999984	999984	999984	19
999985	999985	999985	999986	999986	999986	18
999986	999987	999987	999987	999987	999988	17
999988	999988	999988	999988	999989	999989	16
999989	999989	999990	999990	999990	999990	15
999990	999991	999991	999991	999991	999992	14
999992	999992	999992	999992	999992	999993	13
999993	999993	999993	999993	999994	999994	12
999994	999994	999994	999994	999995	999995	11
999995	999995	999995	999995	999995	999996	10
1.999996	999996	999996	999996	999996	999996	9
999997	999997	999997	999997	999997	999997	8
999997	999997	999998	999998	999998	999998	7
999998	999998	999998	999998	999998	999998	6
999998	999999	999999	999999	999999	999999	5
999999	999999	999999	999999	999999	999999	4
999999	999999	999999	999999	999999	999999	3
2.000000	000000	000000	000000	000000	000000	2
000000	000000	000000	000000	000000	000000	1
000000	000000	000000	000000	000000	000000	0
60°	50°	40°	30°	20°	10°	Minutes
Versed Sine Supplement of 0 degree, or Natural Co-sine of 0 degree.						
Proport. } 1" 2" 3" 4" 5" 6" 7" 8" 9"						
parts. } 0 0 0 0 0 0 0 0 0						

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0 1 2 3 4 5 6 7 8 9										Proportional Parts.									
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9		
100	000000	0434	0868	1301	1734	2166	2598	3030	3461	3891	43	86	130	173	216	259	303	346	389	
101	4321	4751	5181	5609	6038	6466	6894	7321	7748	8174	43	86	128	171	214	257	300	343	386	
102	8600	9026	9451	9876	0300	0724	1147	1570	1993	2415	42	85	127	170	212	254	297	339	381	
103	012837	3259	3680	4100	4521	4940	5360	5779	6197	6616	42	84	126	168	210	252	294	336	378	
104	7033	7451	7868	8284	8701	9116	9532	9947	0361	0776	42	83	125	166	208	250	291	333	375	
105	021189	1603	2016	2428	2841	3253	3664	4075	4486	4896	41	82	124	165	206	247	288	330	371	
106	5306	5715	6125	6533	6942	7350	7757	8164	8571	8978	41	82	122	163	204	245	286	326	366	
107	9384	9790	0195	0600	1004	1409	1812	2216	2619	3021	40	81	121	162	202	242	283	323	363	
108	033424	3826	4227	4629	5029	5430	5830	6230	6629	7028	40	80	120	160	200	240	280	321	361	
109	7427	7825	8223	8620	9017	9414	9811	0207	0602	0998	40	79	119	159	198	238	278	318	358	
110	041393	1787	2182	2576	2969	3362	3755	4148	4540	4932	39	79	118	157	196	236	275	314	354	
111	5323	5714	6105	6495	6885	7275	7664	8053	8442	8830	39	78	117	156	195	234	273	312	352	
112	9218	9606	9993	0380	0766	1152	1538	1924	2309	2694	39	77	116	154	193	232	270	309	347	
113	053078	3463	3846	4230	4613	4996	5378	5761	6142	6524	38	77	115	153	191	230	268	306	344	
114	6905	7286	7666	8046	8426	8806	9185	9563	9942	0320	38	76	114	152	190	228	266	304	342	
115	060698	1075	1453	1829	2206	2582	2958	3333	3709	4083	38	75	113	150	188	226	263	301	338	
116	4458	4832	5206	5580	5953	6326	6699	7071	7443	7815	37	75	112	149	186	224	261	298	335	
117	8186	8557	8928	9298	9668	0038	0407	0777	1145	1514	37	74	111	148	185	222	259	296	333	
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148	170262	0555	0848	1141	1434	1727	2019	2311	2603	2895	29	58	88	117	146	175	204	234	263	
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Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

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165	217484	7747	8010	8273	8536	8798	9060	9323	9585	9846	26	52	79	105	131	157	183	210	236	
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213	8380	8583	8787	8991	9194	9398	9601	9805	10008	10211	20	41	61	81	102	122	142	163	183	
214	330414	0617	0820	1022	1225	1427	1630	1832	2034	2236	20	40	61	81	101	121	141	162	182	
215	332439	2640	2842	3044	3246	3447	3649	3850	4051	4253	20	40	60	81	101	121	141	161	181	
216	4454	4655	4856	5057	5257	5458	5659	5859	6059	6260	20	40	60	80	100	120	140	160	180	
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Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
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LOGARITHMS OF NUMBERS FROM 1 TO 999999; PART THE FIRST.

Nat. No.											Proportional parts.									
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233	7356	7542	7729	7915	8101	8287	8473	8659	8845	9030	19	37	56	75	93	112	130	149	167	
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236	2912	3096	3280	3464	3648	3831	4015	4198	4382	4565	18	37	55	74	92	110	129	147	166	
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242	3815	3995	4174	4353	4533	4712	4891	5070	5249	5428	18	36	54	72	90	108	126	144	162	
243	5606	5785	5964	6142	6321	6499	6677	6856	7034	7212	18	36	53	71	89	107	125	143	161	
244	7390	7568	7746	7924	8101	8279	8457	8634	8811	8989	18	36	53	71	89	107	125	142	160	
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258	411620	1788	1956	2124	2293	2461	2629	2796	2964	3132	17	34	50	67	84	101	118	135	152	
259	3300	3467	3635	3803	3970	4137	4305	4472	4639	4806	17	33	50	67	84	101	117	134	151	
260	414973	5140	5307	5474	5641	5808	5974	6141	6308	6474	17	33	50	67	84	101	117	134	150	
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265	423246	3410	3574	3737	3901	4065	4228	4392	4555	4718	16	33	49	65	81	98	114	131	147	
266	4882	5045	5208	5371	5534	5697	5860	6023	6186	6349	16	33	49	65	81	98	114	130	147	
267	6511	6674	6837	6999	7161	7324	7486	7648	7811	7973	16	33	49	65	81	98	114	130	147	
268	8135	8297	8459	8621	8783	8944	9106	9268	9429	9591	16	32	48	65	81	97	113	129	145	
269	9752	9914	••75	••236	••398	••559	••720	••881	1042	1203	16	32	48	65	81	97	113	129	145	
270	431364	1525	1685	1846	2007	2167	2328	2488	2649	2809	16	32	48	64	80	96	112	128	144	
271	2969	3130	3290	3450	3610	3770	3930	4090	4250	4409	16	32	48	64	80	96	112	128	144	
272	4569	4729	4888	5048	5207	5367	5526	5685	5844	6004	16	32	48	64	80	96	112	128	144	
273	6163	6322	6481	6640	6799	6957	7116	7275	7433	7592	16	32	47	63	79	95	111	127	143	
274	7751	7909	8068	8226	8384	8542	8701	8859	9017	9175	16	32	47	63	79	95	111	127	143	
275	439333	9491	9648	9806	9964	••122	••279	••437	••594	••752	16	32	47	63	79	95	111	126	142	
276	440909	1066	1224	1381	1538	1695	1852	2009	2166	2323	16	31	47	63	78	94	110	126	141	
277	2480	2637	2793	2950	3107	3263	3420	3576	3732	3889	16	31	47	63	78	94	110	126	141	
278	4045	4201	4357	4513	4669	4825	4981	5137	5293	5449	16	31	47	62	78	94	109	125	140	
279	5604	5760	5915	6071	6226	6382	6537	6693	6848	7003	16	31	47	62	78	94	109	125	140	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts.									
										1	2	3	4	5	6	7	8	9		

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.											Proportional Parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
280	447158	7313	7468	7623	7778	7933	8088	8242	8397	8551	15	31	46	62	77	93	108	124	139	
281	8706	8861	9015	9170	9324	9478	9633	9787	9941	0095	15	31	46	62	77	92	108	123	139	
282	450249	0403	0557	0711	0865	1019	1172	1326	1479	1633	15	31	46	62	77	92	108	123	139	
283	1786	1940	2093	2247	2400	2553	2706	2859	3012	3165	15	31	46	61	77	92	107	123	138	
284	3318	3471	3624	3777	3930	4082	4235	4388	4540	4692	15	31	46	61	77	92	107	123	138	
285	454845	4997	5150	5302	5454	5606	5758	5910	6062	6214	15	30	46	61	76	91	106	122	137	
286	6306	6518	6670	6821	6973	7125	7276	7428	7579	7731	15	30	46	61	76	91	106	122	137	
287	7882	8033	8184	8336	8487	8638	8789	8940	9091	9242	15	30	45	61	76	91	106	121	136	
288	9393	9543	9694	9845	9995	0146	0296	0447	0597	0748	15	30	45	61	76	91	106	121	136	
289	460898	1048	1198	1348	1499	1649	1799	1949	2098	2248	15	30	45	60	75	90	105	120	135	
290	462398	2548	2697	2847	2997	3146	3296	3445	3594	3744	15	30	45	60	75	90	105	120	135	
291	3893	4042	4191	4341	4490	4639	4788	4936	5085	5234	15	30	45	60	75	90	105	120	135	
292	5383	5532	5680	5829	5977	6126	6274	6423	6571	6719	15	30	44	59	74	89	104	118	133	
293	6688	7016	7164	7312	7460	7608	7756	7904	8052	8200	15	30	44	59	74	89	104	118	133	
294	8347	8495	8643	8790	8938	9085	9233	9380	9528	9675	15	30	44	59	74	89	104	118	133	
295	469822	9969	0116	0263	0411	0558	0704	0851	0998	1145	15	29	44	59	74	88	103	118	132	
296	471292	1438	1585	1732	1878	2025	2171	2318	2464	2610	15	29	44	59	73	88	102	117	132	
297	2756	2903	3049	3195	3341	3487	3633	3779	3925	4071	15	29	44	59	73	88	102	117	132	
298	4216	4362	4508	4653	4799	4944	5090	5235	5381	5526	15	29	44	58	73	88	102	117	131	
299	5671	5816	5962	6107	6252	6397	6542	6687	6832	6977	15	29	43	58	72	87	101	116	130	
300	477131	7266	7411	7555	7700	7845	7989	8133	8278	8422	14	29	43	58	72	87	101	116	130	
301	8567	8711	8855	8999	9143	9287	9431	9575	9719	9863	14	29	43	58	72	86	101	115	130	
302	480007	0151	0295	0438	0582	0725	0869	1012	1156	1299	14	29	43	58	72	86	101	115	130	
303	1443	1586	1729	1872	2016	2159	2302	2445	2588	2731	14	29	43	57	71	86	100	114	129	
304	2874	3016	3159	3302	3445	3587	3730	3873	4015	4157	14	28	43	57	71	85	99	114	128	
305	484300	4442	4585	4727	4869	5011	5153	5295	5438	5580	14	28	43	57	71	85	99	114	128	
306	5721	5863	6005	6147	6289	6431	6572	6714	6855	6997	14	28	43	57	71	85	99	114	128	
307	7138	7280	7421	7563	7704	7845	7986	8128	8269	8410	14	28	42	57	71	85	99	113	127	
308	8551	8692	8833	8974	9114	9255	9396	9537	9677	9818	14	28	42	56	70	84	98	112	126	
309	9959	0099	0240	0380	0520	0661	0801	0941	1081	1222	14	28	42	56	70	84	98	112	126	
310	491362	1502	1642	1782	1922	2062	2202	2341	2481	2621	14	28	42	56	70	84	98	112	126	
311	2760	2900	3040	3179	3319	3458	3597	3737	3876	4015	14	28	42	56	70	84	98	112	126	
312	4155	4294	4433	4572	4711	4850	4989	5128	5267	5406	14	28	41	56	69	83	97	111	125	
313	5544	5683	5822	5960	6099	6238	6376	6515	6653	6791	14	28	41	56	69	83	97	111	125	
314	6930	7068	7206	7344	7483	7621	7759	7897	8035	8173	14	28	41	55	69	83	97	110	124	
315	498311	8448	8586	8724	8862	8999	9137	9275	9412	9550	14	28	41	55	69	83	97	110	124	
316	9687	9825	9962	0099	0237	0374	0511	0648	0785	0922	14	27	41	55	68	82	96	110	123	
317	501059	1196	1333	1470	1607	1744	1881	2017	2154	2291	14	27	41	55	68	82	96	110	123	
318	2427	2564	2700	2837	2973	3109	3246	3382	3518	3655	14	27	41	54	68	82	95	109	123	
319	3791	3927	4063	4199	4335	4471	4607	4743	4879	5014	14	27	41	54	68	82	95	109	122	
320	505150	5286	5421	5557	5693	5828	5964	6099	6234	6370	14	27	41	54	68	82	95	109	122	
321	6505	6640	6776	6911	7046	7181	7316	7451	7586	7721	13	27	40	54	67	81	94	108	121	
322	7856	7991	8126	8260	8395	8530	8664	8799	8934	9068	13	27	40	54	67	81	94	108	121	
323	9203	9337	9471	9606	9740	9874	0009	0143	0277	0411	13	27	40	54	67	81	94	108	121	
324	510545	0679	0813	0947	1081	1215	1349	1482	1616	1750	13	27	40	54	67	80	94	107	121	
325	511883	2017	2151	2284	2418	2551	2684	2818	2951	3084	13	27	40	53	67	80	93	107	120	
326	3218	3351	3484	3617	3750	3883	4016	4149	4282	4415	13	27	40	53	66	80	93	106	120	
327	4548	4681	4813	4946	5079	5211	5344	5476	5609	5741	13	27	40	53	66	80	93	106	120	
328	5874	6006	6139	6271	6403	6535	6668	6800	6932	7064	13	26	40	53	66	79	92	106	119	
329	7196	7328	7460	7592	7724	7855	7987	8119	8251	8382	13	26	40	53	66	79	92	106	119	
330	518514	8646	8777	8909	9040	9172	9303	9434	9566	9697	13	26	39	52	66	79	92	105	118	
331	9828	9959	0090	0221	0353	0484	0615	0746	0876	1007	13	26	39	52	66	79	92	105	118	
332	521138	1269	1400	1530	1661	1792	1922	2053	2183	2314	13	26	39	52	65	78	91	104	117	
333	2444	2575	2705	2835	2966	3096	3226	3356	3486	3616	13	26	39	52	65	78	91	104	117	
334	3747	3877	4006	4136	4266	4396	4526	4656	4785	4915	13	26	39	52	65	78	91	104	117	
335	525045	5174	5304	5434	5563	5693	5822	5951	6081	6210	13	26	39	52	65	78	91	104	117	
336	6339	6469	6598	6727	6856	6985	7114	7243	7372	7501	13	26	39	52	65	78	91	104	117	
337	7630	7759	7888	8016	8145	8274	8402	8531	8660	8788	13	26	38	51	64	77	90	103	116	
338	8917	9045	9174	9302	9430	9559	9687	9815	9943	0072	13	26	38	51	64	77	90	103	116	
339	530200	0328	0456	0584	0712	0840	0968	1096	1223	1351	13	26	38	51	64	77	90	102	115	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.											Proportional Parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
340	531479	1607	1734	1862	1990	2117	2245	2372	2500	2627	13	25	38	51	63	76	89	102	114	
341	2754	2882	3009	3136	3264	3391	3518	3645	3772	3899	13	25	38	51	63	76	89	102	114	
342	4026	4153	4280	4407	4534	4661	4787	4914	5041	5168	13	25	38	51	63	76	89	102	114	
343	5294	5421	5547	5674	5800	5927	6053	6180	6306	6432	13	25	38	50	63	76	88	101	114	
344	6558	6685	6811	6937	7063	7189	7315	7441	7567	7693	13	25	38	50	63	76	88	101	114	
345	537819	7945	8071	8197	8322	8448	8574	8699	8825	8951	13	25	38	50	63	76	88	101	114	
346	9076	9202	9327	9453	9578	9703	9829	9954	10079	10204	13	25	38	50	63	75	88	100	113	
347	540330	2455	2580	2705	2830	2955	3080	3205	3330	3454	12	25	37	50	62	75	87	100	112	
348	1579	1704	1829	1954	2078	2203	2327	2452	2577	2701	12	25	37	50	62	75	87	100	112	
349	2825	2950	3074	3199	3323	3447	3571	3696	3820	3944	12	25	37	50	62	75	87	100	112	
350	544068	4192	4316	4440	4564	4688	4812	4936	5060	5183	12	25	37	50	62	74	87	99	112	
351	5307	5431	5555	5678	5802	5925	6049	6172	6296	6419	12	25	37	49	62	74	86	99	111	
352	6543	6666	6789	6911	7033	7155	7278	7400	7522	7644	12	25	37	49	62	74	86	99	111	
353	7775	7898	8021	8144	8267	8389	8512	8635	8758	8881	12	25	37	49	61	74	86	98	111	
354	9003	9126	9249	9371	9494	9616	9739	9861	9984	10106	12	25	37	49	61	74	86	98	111	
355	550228	0351	0473	0595	0717	0839	0961	1083	1205	1327	12	24	37	49	61	73	85	97	110	
356	1450	1572	1694	1816	1938	2060	2181	2303	2425	2547	12	24	37	49	61	73	86	98	110	
357	2668	2790	2912	3033	3155	3276	3398	3519	3640	3762	12	24	36	49	61	73	85	97	109	
358	3883	4004	4126	4247	4368	4489	4610	4731	4852	4974	12	24	36	49	61	73	85	97	109	
359	5094	5215	5336	5457	5578	5699	5820	5940	6061	6182	12	24	36	48	60	72	84	96	108	
360	556303	6423	6544	6664	6785	6905	7026	7146	7267	7387	12	24	36	48	60	72	84	96	108	
361	7507	7628	7748	7868	7988	8108	8228	8349	8469	8589	12	24	36	48	60	72	84	96	108	
362	8709	8829	8948	9068	9188	9308	9428	9548	9667	9787	12	24	36	48	60	72	84	96	108	
363	9907	10026	10146	10265	10385	10504	10624	10743	10863	10982	12	24	36	48	60	72	84	96	108	
364	561101	1221	1340	1459	1578	1698	1817	1936	2055	2174	12	24	36	48	60	72	84	96	108	
365	562293	2412	2531	2650	2769	2887	3006	3125	3244	3362	12	24	36	48	60	71	83	95	107	
366	3481	3600	3718	3837	3956	4074	4193	4311	4429	4548	12	24	36	48	60	71	83	95	107	
367	4666	4784	4903	5021	5139	5257	5376	5494	5612	5730	12	24	36	47	59	71	83	95	107	
368	5848	5966	6084	6202	6320	6438	6555	6673	6791	6909	12	24	35	47	59	71	83	94	106	
369	7026	7144	7262	7379	7497	7614	7732	7850	7967	8084	12	24	35	47	59	71	83	94	106	
370	568202	8319	8436	8554	8671	8788	8905	9023	9140	9257	12	23	35	47	58	70	82	94	106	
371	9374	9491	9608	9725	9842	9959	10076	10193	10309	10426	12	23	35	47	58	70	82	94	106	
372	570543	0660	0776	0893	1010	1126	1243	1359	1476	1592	12	23	35	47	58	70	81	93	105	
373	1709	1825	1942	2058	2174	2291	2407	2523	2639	2755	12	23	35	47	58	70	81	93	105	
374	2872	2988	3104	3220	3336	3452	3568	3684	3800	3915	12	23	35	46	58	70	81	93	104	
375	574031	4147	4263	4379	4494	4610	4726	4841	4957	5072	12	23	35	46	58	70	81	93	104	
376	5188	5303	5419	5534	5650	5765	5880	5996	6111	6226	12	23	35	46	58	69	80	92	104	
377	6341	6457	6572	6687	6802	6917	7032	7147	7262	7377	12	23	35	46	58	69	80	92	104	
378	7492	7607	7722	7836	7951	8066	8181	8295	8410	8525	11	23	34	46	57	68	80	91	103	
379	8639	8754	8868	8983	9097	9212	9326	9441	9555	9669	11	23	34	46	57	68	80	91	103	
380	579784	9898	10012	10126	10241	10355	10469	10583	10697	10811	11	23	34	46	57	68	80	91	103	
381	580925	1039	1153	1267	1381	1495	1608	1722	1836	1950	11	23	34	46	57	68	80	91	103	
382	2063	2177	2291	2404	2518	2631	2745	2859	2972	3085	11	23	34	45	56	68	79	90	102	
383	3199	3312	3426	3539	3652	3765	3879	3992	4105	4218	11	23	34	45	56	68	79	90	102	
384	4331	4444	4557	4670	4783	4896	5009	5122	5235	5348	11	23	34	45	56	68	79	90	102	
385	585461	5574	5686	5799	5912	6024	6137	6250	6362	6475	11	22	34	45	56	67	78	89	101	
386	6587	6700	6812	6925	7037	7150	7262	7374	7487	7599	11	22	34	45	56	67	78	89	101	
387	7711	7823	7935	8048	8160	8272	8384	8496	8608	8720	11	22	34	45	56	67	78	89	101	
388	8832	8944	9056	9167	9279	9391	9503	9615	9726	9838	11	22	33	44	55	66	77	88	100	
389	9950	10061	10173	10284	10396	10508	10619	10730	10842	10953	11	22	33	44	55	66	77	88	100	
390	591065	1176	1287	1399	1510	1621	1732	1843	1955	2066	11	22	33	44	55	66	77	88	100	
391	2177	2288	2399	2510	2621	2732	2843	2954	3064	3175	11	22	33	44	55	66	77	88	100	
392	3286	3397	3508	3618	3729	3840	3950	4061	4172	4282	11	22	33	44	55	66	77	88	99	
393	4393	4503	4614	4724	4834	4945	5055	5165	5276	5386	11	22	33	44	55	66	77	88	99	
394	5496	5606	5717	5827	5937	6047	6157	6267	6377	6487	11	22	33	44	55	66	77	88	99	
395	596597	6707	6817	6927	7037	7147	7256	7366	7476	7586	11	22	33	44	55	66	77	88	99	
396	7695	7805	7915	8024	8134	8243	8353	8462	8572	8681	11	22	33	44	55	66	77	88	99	
397	8791	8900	9009	9119	9228	9337	9446	9556	9665	9774	11	22	33	44	55	66	77	88	99	
398	9883	9992	10101	10210	10319	10428	10537	10646	10755	10864	11	22	33	44	54	65	76	87	98	
399	600973	1082	1191	1299	1408	1517	1626	1734	1843	1951	11	22	33	44	54	65	76	87	98	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
											1	2	3	4	5	6	7	8	9	

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0 1 2 3 4 5 6 7 8 9										Proportional Parts.									
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9		
400	602060	2169	2277	2386	2494	2603	2711	2819	2928	3036	11	22	33	43	54	65	76	87	98	
401	3144	3253	3361	3469	3577	3686	3794	3902	4010	4118	11	22	33	43	54	65	76	87	98	
402	4226	4334	4442	4550	4658	4766	4874	4982	5090	5197	11	22	32	43	54	65	76	86	97	
403	5305	5413	5521	5628	5736	5844	5951	6059	6166	6274	11	22	32	43	54	65	76	86	97	
404	6381	6489	6596	6704	6811	6919	7026	7133	7241	7348	11	21	32	43	54	64	75	86	96	
405	607455	7562	7669	7777	7884	7991	8098	8205	8312	8419	11	21	32	43	54	64	75	86	96	
406	8526	8633	8740	8847	8954	9061	9167	9274	9381	9488	11	21	32	43	53	64	75	86	96	
407	9594	9701	9808	9914	10021	10128	10234	10341	10447	10554	11	21	32	43	53	64	75	86	96	
408	619666	0767	0873	0979	1086	1192	1298	1405	1511	1617	11	21	32	42	53	64	74	85	95	
409	1723	1830	1936	2042	2148	2254	2360	2466	2572	2678	11	24	32	42	53	64	74	85	95	
410	612784	2890	2996	3102	3207	3313	3419	3525	3630	3736	11	21	32	42	53	64	74	85	95	
411	3842	3948	4053	4159	4264	4370	4475	4581	4686	4792	11	21	32	42	53	63	74	84	95	
412	4897	5003	5108	5213	5319	5424	5529	5635	5740	5845	11	21	31	42	52	63	73	84	95	
413	5950	6055	6160	6265	6371	6476	6581	6686	6791	6895	11	21	31	42	52	63	73	84	95	
414	7000	7105	7210	7315	7420	7525	7629	7734	7839	7943	10	21	31	42	52	63	73	84	94	
415	618048	8153	8257	8362	8467	8571	8676	8780	8885	8989	10	21	31	42	52	62	73	83	94	
416	9093	9198	9302	9406	9511	9615	9719	9824	9928	10032	10	21	31	42	52	62	73	83	94	
417	620136	0240	0344	0448	0552	0657	0761	0865	0968	1072	10	21	31	42	52	62	73	83	94	
418	1176	1280	1384	1488	1592	1696	1799	1903	2007	2110	10	21	31	42	52	62	73	83	94	
419	2214	2318	2421	2525	2628	2732	2836	2939	3042	3146	10	21	31	41	52	62	72	83	93	
420	623249	3353	3456	3559	3663	3766	3869	3973	4076	4179	10	21	31	41	52	62	72	83	93	
421	4282	4385	4488	4592	4695	4798	4901	5004	5107	5210	10	21	31	41	51	62	72	82	93	
422	5313	5415	5518	5621	5724	5827	5930	6032	6135	6238	10	21	31	41	51	62	72	82	93	
423	6340	6443	6546	6648	6751	6853	6956	7059	7161	7263	10	21	31	41	51	62	72	82	93	
424	7366	7468	7571	7673	7775	7878	7980	8082	8185	8287	10	20	31	41	51	61	72	82	92	
425	628389	8491	8593	8695	8798	8900	9002	9104	9206	9308	10	20	31	41	51	61	72	82	92	
426	9410	9512	9613	9715	9817	9919	10021	10123	10224	10326	10	20	30	41	51	61	71	81	91	
427	630438	0530	0631	0733	0835	0936	1038	1139	1241	1342	10	20	30	41	51	61	71	81	91	
428	1444	1545	1647	1748	1850	1951	2052	2154	2255	2356	10	20	30	41	51	61	71	81	91	
429	2457	2559	2660	2761	2862	2963	3064	3165	3266	3367	10	20	30	41	51	61	71	81	91	
430	633469	3569	3670	3771	3872	3973	4074	4175	4276	4377	10	20	30	40	50	61	71	81	91	
431	4477	4578	4679	4780	4880	4981	5081	5182	5283	5383	10	20	30	40	50	61	71	81	91	
432	5484	5584	5685	5785	5886	5986	6087	6187	6287	6388	10	20	30	40	50	60	70	80	90	
433	6488	6588	6688	6789	6889	6989	7089	7189	7290	7390	10	20	30	40	50	60	70	80	90	
434	7490	7590	7690	7790	7890	7990	8090	8190	8290	8389	10	20	30	40	50	60	70	80	90	
435	638489	8589	8689	8789	8888	8988	9088	9188	9287	9387	10	20	30	40	50	60	70	80	90	
436	9486	9586	9686	9785	9885	9984	10084	10183	10283	10382	10	20	30	40	50	60	70	80	90	
437	640481	0581	0680	0780	0879	0978	1077	1177	1276	1375	10	20	30	40	50	60	70	80	90	
438	1474	1573	1672	1772	1871	1970	2069	2168	2267	2366	10	20	30	40	50	59	69	79	89	
439	2465	2563	2662	2761	2860	2959	3058	3157	3255	3354	10	20	30	40	49	59	69	79	89	
440	643453	3551	3650	3749	3847	3946	4045	4143	4242	4340	10	20	30	39	49	59	69	79	89	
441	4439	4537	4636	4734	4832	4931	5029	5127	5226	5324	10	20	30	39	49	59	69	79	89	
442	5422	5521	5619	5717	5815	5913	6011	6110	6208	6306	10	20	30	39	49	59	69	79	89	
443	6404	6502	6600	6698	6796	6894	6992	7089	7187	7285	10	20	29	39	49	59	69	78	88	
444	7383	7481	7579	7676	7774	7872	7970	8067	8165	8263	10	20	29	39	49	59	69	78	88	
445	648360	8458	8555	8653	8750	8848	8945	9043	9140	9238	10	19	29	39	49	58	68	78	88	
446	9335	9432	9530	9627	9724	9822	9919	10016	10113	10210	10	19	29	39	49	58	68	78	88	
447	650308	0405	0502	0599	0696	0793	0890	0987	1084	1181	10	19	29	39	49	58	68	78	88	
448	1278	1375	1472	1569	1666	1762	1859	1956	2053	2150	10	19	29	38	48	58	67	77	87	
449	2246	2343	2440	2536	2633	2730	2826	2923	3020	3116	10	19	29	38	48	58	67	77	87	
450	653213	3309	3406	3502	3598	3695	3791	3888	3984	4080	10	19	29	38	48	58	67	77	87	
451	4177	4273	4369	4465	4562	4658	4754	4850	4946	5042	10	19	29	38	48	58	67	77	86	
452	5138	5235	5331	5427	5523	5619	5715	5811	5906	6002	10	19	29	38	48	58	67	77	86	
453	6098	6194	6290	6386	6482	6577	6673	6769	6865	6960	10	19	29	38	48	58	67	77	86	
454	7056	7152	7247	7343	7438	7534	7629	7725	7821	7916	10	19	28	38	47	57	67	76	86	
455	658011	8107	8202	8298	8393	8488	8584	8679	8774	8870	10	19	28	38	47	57	67	76	86	
456	8965	9060	9155	9251	9346	9441	9536	9631	9726	9821	10	19	28	38	47	57	67	76	86	
457	9916	1011	1016	1021	1026	1031	1036	1041	1046	1051	10	19	28	38	47	57	67	76	86	
458	660866	0960	1055	1150	1245	1339	1434	1529	1623	1718	9	19	28	38	47	57	66	76	85	
459	1813	1907	2002	2096	2191	2286	2380	2475	2569	2663	9	19	28	38	47	57	66	76	85	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
											1	2	3	4	5	6	7	8	9	

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.											Proportional Parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
460	662758	285229	473041	313532	323033	332434	341835	351236	360737	370138	9	19	28	38	47	57	66	76	85	
461	3701	3798	3889	3984	4078	4172	4266	4360	4454	4548	9	19	28	38	47	56	66	75	85	
462	4642	4736	4830	4924	5018	5112	5206	5300	5393	5487	9	19	28	38	47	56	66	75	85	
463	5581	5675	5769	5862	5956	6050	6143	6237	6331	6424	9	19	28	38	47	56	66	75	85	
464	6518	6612	6705	6799	6892	6986	7079	7173	7266	7360	9	19	28	37	47	56	65	74	84	
465	667453	7546	7640	7733	7826	7920	8013	8106	8200	8293	9	19	28	37	47	56	65	74	84	
466	8386	8479	8572	8665	8759	8852	8945	9038	9131	9224	9	19	28	37	47	56	65	74	84	
467	9317	9410	9503	9596	9689	9782	9875	9967	10060	10153	9	19	28	37	47	56	65	74	84	
468	670246	0339	0431	0524	0617	0710	0802	0895	0988	1080	9	18	28	37	46	55	64	74	83	
469	1173	1265	1358	1451	1543	1636	1728	1821	1913	2005	9	18	28	37	46	55	64	74	83	
470	672098	2190	2283	2375	2467	2560	2652	2744	2837	2929	9	18	28	37	46	55	64	74	83	
471	3021	3113	3205	3297	3390	3482	3574	3666	3758	3850	9	18	28	37	46	55	64	74	83	
472	3942	4034	4126	4218	4310	4402	4494	4586	4678	4769	9	18	28	37	46	55	64	74	83	
473	4861	4953	5045	5137	5228	5320	5412	5503	5595	5687	9	18	28	37	46	55	64	74	83	
474	5778	5870	5962	6053	6145	6236	6328	6419	6511	6602	9	18	27	36	46	55	64	73	82	
475	676694	6786	6876	6968	7059	7151	7242	7333	7424	7516	9	18	27	36	46	55	64	73	82	
476	7607	7698	7789	7881	7972	8063	8154	8245	8336	8427	9	18	27	36	46	55	64	73	82	
477	8518	8609	8700	8791	8882	8973	9064	9155	9246	9337	9	18	27	36	45	55	64	73	82	
478	9428	9519	9610	9701	9791	9882	9973	10063	10154	10245	9	18	27	36	45	55	64	73	82	
479	680336	0420	0517	0607	0698	0789	0879	0970	1060	1151	9	18	27	36	45	55	64	73	82	
480	681241	1332	1422	1513	1603	1693	1784	1874	1965	2055	9	18	27	36	45	54	63	72	81	
481	2145	2235	2326	2416	2506	2596	2687	2777	2867	2957	9	18	27	36	45	54	63	72	81	
482	3047	3137	3227	3317	3407	3497	3587	3677	3767	3857	9	18	27	36	45	54	63	72	81	
483	3947	4037	4127	4217	4307	4397	4486	4576	4666	4756	9	18	27	36	45	54	63	72	81	
484	4845	4935	5025	5115	5204	5294	5383	5473	5563	5652	9	18	27	36	45	54	63	72	81	
485	685742	5831	5921	6010	6100	6189	6279	6368	6458	6547	9	18	27	36	45	54	63	72	81	
486	6636	6726	6815	6904	6994	7083	7172	7261	7351	7440	9	18	27	36	45	54	63	72	81	
487	7529	7618	7707	7796	7886	7975	8064	8153	8242	8331	9	18	27	36	45	54	62	72	80	
488	8420	8509	8598	8687	8776	8865	8954	9042	9131	9220	9	18	27	36	45	54	62	72	80	
489	9309	9398	9486	9575	9664	9753	9841	9930	10019	10107	9	18	27	36	45	54	62	72	80	
490	690196	0285	0373	0462	0551	0639	0728	0816	0905	0993	9	18	27	35	44	53	62	71	80	
491	1082	1170	1258	1347	1435	1524	1612	1700	1789	1877	9	18	27	35	44	53	62	71	80	
492	1965	2053	2142	2230	2318	2406	2494	2583	2671	2759	9	18	27	35	44	53	62	71	80	
493	2847	2935	3023	3111	3199	3287	3375	3463	3551	3639	9	18	26	35	44	53	62	70	79	
494	3727	3815	3903	3991	4079	4166	4254	4342	4430	4518	9	18	26	35	44	53	62	70	79	
495	694605	4693	4781	4868	4956	5044	5131	5219	5307	5394	9	18	26	35	44	53	62	70	79	
496	5482	5569	5657	5744	5832	5919	6007	6094	6182	6269	9	17	26	35	44	52	61	70	79	
497	6356	6443	6531	6618	6706	6793	6880	6968	7055	7142	9	17	26	35	44	52	61	70	79	
498	7229	7317	7404	7491	7578	7665	7752	7839	7926	8014	9	17	26	35	44	52	61	70	79	
499	8101	8188	8275	8362	8449	8536	8622	8709	8796	8883	9	17	26	35	44	52	61	70	79	
500	698970	9057	9144	9231	9317	9404	9491	9578	9664	9751	9	17	26	35	43	52	61	70	78	
501	9838	9924	10011	10098	10184	10271	10358	10444	10531	10617	9	17	26	35	43	52	61	70	78	
502	700704	0790	0877	0963	1050	1136	1223	1309	1395	1482	9	17	26	35	43	52	61	70	78	
503	1568	1654	1741	1827	1913	2000	2086	2172	2258	2344	9	17	26	35	43	52	61	70	78	
504	2431	2517	2603	2689	2775	2861	2947	3033	3119	3205	9	17	26	34	43	52	60	69	77	
505	703291	3377	3463	3549	3635	3721	3807	3893	3979	4065	9	17	26	34	43	52	60	69	77	
506	4151	4236	4322	4408	4494	4579	4665	4751	4837	4922	9	17	26	34	43	52	60	69	77	
507	5008	5094	5179	5265	5351	5436	5522	5607	5693	5778	9	17	26	34	43	52	60	69	77	
508	5864	5949	6035	6120	6206	6291	6376	6462	6547	6633	9	17	26	34	43	51	60	68	77	
509	6718	6803	6888	6974	7059	7144	7229	7315	7400	7485	9	17	26	34	43	51	60	68	77	
510	707570	7655	7741	7826	7911	7996	8081	8166	8251	8336	9	17	26	34	43	51	60	68	77	
511	8421	8506	8591	8676	8761	8846	8931	9015	9100	9185	9	17	26	34	43	51	60	68	77	
512	9270	9355	9440	9524	9609	9694	9779	9863	9948	10033	8	17	25	34	42	51	59	68	76	
513	710117	0202	0287	0371	0456	0540	0625	0710	0794	0879	8	17	25	34	42	51	59	68	76	
514	0963	1048	1132	1217	1301	1385	1470	1554	1639	1723	8	17	25	34	42	51	59	68	76	
515	711807	1802	1876	1960	2044	2129	2213	2297	2381	2466	8	17	25	34	42	51	59	68	76	
516	2650	2734	2818	2902	2986	3070	3154	3239	3323	3407	8	17	25	34	42	50	59	67	76	
517	3491	3575	3659	3743	3826	3910	3994	4078	4162	4246	8	17	25	34	42	50	59	67	76	
518	4330	4414	4497	4581	4665	4749	4833	4916	5000	5084	8	17	25	34	42	50	59	67	76	
519	5167	5251	5335	5418	5502	5586	5669	5753	5836	5920	8	17	25	34	42	50	59	67	76	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
										1	2	3	4	5	6	7	8	9		

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0 1 2 3 4 5 6 7 8 9										Proportional parts.									
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9		
520	716003	6087	6170	6254	6337	6421	6504	6588	6671	6754	8	17	25	34	42	50	59	67	76	
521	6838	6921	7004	7088	7171	7254	7338	7421	7504	7587	8	17	25	33	42	50	58	66	75	
522	7671	7754	7837	7920	8003	8086	8169	8253	8336	8419	8	17	25	33	42	50	58	66	75	
523	8502	8585	8668	8751	8834	8917	9000	9083	9166	9248	8	17	25	33	42	50	58	66	75	
524	9331	9414	9497	9580	9663	9746	9828	9911	9994	●77	8	17	25	33	41	50	58	66	75	
525	720159	0242	0325	0407	0490	0573	0655	0738	0821	0903	8	17	25	33	41	50	58	66	75	
526	0086	1068	1151	1233	1316	1398	1481	1563	1646	1728	8	16	25	33	41	49	58	66	74	
527	1811	1893	1975	2058	2140	2223	2305	2387	2469	2552	8	16	25	33	41	49	58	66	74	
528	2634	2716	2798	2881	2963	3045	3127	3209	3291	3374	8	16	25	33	41	49	58	66	74	
529	3456	3538	3620	3702	3784	3866	3948	4030	4112	4194	8	16	25	33	41	49	57	66	74	
530	724270	4358	4440	4522	4604	4685	4767	4849	4931	5013	8	16	25	33	41	49	57	66	74	
531	5095	5176	5258	5340	5422	5503	5585	5667	5748	5830	8	16	25	33	41	49	57	66	74	
532	5918	5999	6079	6157	6238	6320	6401	6483	6564	6646	8	16	24	33	41	49	57	65	73	
533	6727	6809	6890	6972	7053	7134	7216	7297	7379	7460	8	16	24	33	41	49	57	65	73	
534	7541	7623	7704	7785	7866	7948	8029	8110	8191	8273	8	16	24	33	41	49	57	65	73	
535	728354	8435	8516	8597	8678	8760	8841	8922	9003	9084	8	16	24	33	41	49	57	65	73	
536	9165	9246	9327	9408	9489	9570	9651	9732	9813	9893	8	16	24	32	41	49	57	65	73	
537	9974	●55	●136	●217	●298	●379	●459	●540	●621	●702	8	16	24	32	40	49	57	65	73	
538	730782	0863	0944	1024	1105	1186	1266	1347	1428	1508	8	16	24	32	40	49	57	65	73	
539	1589	1669	1750	1830	1911	1991	2072	2152	2233	2313	8	16	24	32	40	48	56	64	72	
540	723394	2474	2555	2635	2715	2796	2876	2956	3037	3117	8	16	24	32	40	48	56	64	72	
541	3197	3278	3358	3438	3518	3599	3679	3759	3839	3919	8	16	24	32	40	48	56	64	72	
542	3999	4079	4160	4240	4320	4400	4480	4560	4640	4720	8	16	24	32	40	48	56	64	72	
543	4800	4880	4960	5040	5120	5200	5279	5359	5439	5519	8	16	24	32	40	48	56	64	72	
544	5599	5679	5759	5838	5918	5998	6078	6157	6237	6317	8	16	24	32	40	48	56	64	72	
545	736397	6476	6556	6636	6715	6795	6874	6954	7034	7113	8	16	24	32	40	48	56	64	72	
546	7193	7272	7352	7431	7511	7590	7670	7749	7829	7908	8	16	24	32	40	48	56	64	72	
547	7987	8066	8146	8225	8305	8384	8463	8543	8622	8701	8	16	24	32	40	48	56	64	72	
548	8781	8860	8939	9018	9097	9177	9256	9335	9414	9493	8	16	24	32	40	47	55	63	71	
549	9573	9651	9731	9810	9889	9968	●●47	●126	●205	●284	8	16	24	32	40	47	55	63	71	
550	740363	0442	0521	0600	0678	0757	0836	0915	0994	1073	8	16	24	32	40	47	55	63	71	
551	1152	1230	1309	1388	1467	1546	1624	1703	1782	1860	8	16	24	32	40	47	55	63	71	
552	1939	2018	2096	2175	2254	2332	2411	2490	2568	2647	8	16	23	31	39	47	55	63	71	
553	2725	2804	2882	2961	3039	3118	3196	3275	3353	3431	8	16	23	31	39	47	55	63	71	
554	3510	3588	3667	3745	3823	3902	3980	4058	4137	4215	8	16	23	31	39	47	55	63	71	
555	744293	4371	4450	4528	4606	4684	4762	4840	4919	4997	8	16	23	31	39	47	55	63	71	
556	5075	5153	5231	5309	5387	5465	5543	5621	5699	5777	8	16	23	31	39	47	55	62	70	
557	5855	5933	6011	6089	6167	6245	6323	6401	6479	6556	8	16	23	31	39	47	55	62	70	
558	6634	6712	6790	6868	6945	7023	7101	7179	7256	7334	8	16	23	31	39	47	55	62	70	
559	7412	7490	7567	7645	7723	7800	7878	7955	8033	8111	8	16	23	31	39	47	54	62	70	
560	748188	8266	8343	8421	8498	8576	8653	8731	8808	8885	8	16	23	31	39	47	54	62	70	
561	8963	9040	9118	9195	9272	9350	9427	9504	9582	9659	8	16	23	31	39	47	54	62	70	
562	9736	9814	9891	9968	●●45	●123	●200	●277	●354	●431	8	16	23	31	39	47	54	62	70	
563	750508	0586	0663	0740	0817	0894	0971	1048	1125	1202	8	16	23	31	39	47	54	62	70	
564	1279	1356	1433	1510	1587	1664	1741	1818	1895	1972	8	15	23	30	38	46	54	62	70	
565	752048	1215	2202	2279	2356	2433	2509	2586	2663	2740	8	15	23	30	38	46	54	62	70	
566	2816	2893	2970	3047	3123	3200	3277	3353	3430	3507	8	15	23	30	38	46	54	62	70	
567	3583	3660	3736	3813	3889	3966	4042	4119	4195	4272	8	15	23	30	38	46	54	62	70	
568	4348	4425	4501	4578	4654	4731	4807	4883	4960	5036	8	15	23	30	38	46	53	61	69	
569	5112	5189	5265	5341	5418	5494	5570	5646	5722	5799	8	15	23	30	38	46	53	61	69	
570	755875	5951	6027	6103	6180	6256	6332	6408	6484	6560	8	15	23	30	38	46	53	61	69	
571	6636	6712	6788	6864	6940	7016	7092	7168	7244	7320	8	15	23	30	38	46	53	61	69	
572	7396	7472	7548	7624	7700	7776	7851	7927	8003	8079	8	15	23	30	38	46	53	61	68	
573	8155	8230	8306	8382	8458	8533	8609	8685	8761	8836	8	15	23	30	38	46	53	61	68	
574	8912	8988	9063	9139	9214	9290	9366	9441	9517	9592	8	15	23	30	38	45	53	60	68	
575	759668	9743	9819	9894	9970	●●45	●121	●196	●272	●347	8	15	23	30	38	45	53	60	68	
576	760423	0498	0573	0649	0724	0799	0875	0950	1025	1101	8	15	23	30	38	45	53	60	68	
577	1176	1251	1326	1402	1477	1552	1627	1702	1778	1853	8	15	22	30	38	45	53	60	68	
578	1928	2003	2078	2153	2228	2303	2378	2454	2529	2604	8	15	22	30	38	45	52	60	68	
579	2679	2754	2829	2904	2979	3053	3128	3203	3278	3353	8	15	22	30	38	45	52	60	68	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts.									
1	2	3	4	5	6	7	8	9												

LOGARITHMS OF NUMBERS. FROM 1 TO 999999; PART THE FIRST.

Nat. No.											Proportional Parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
580	763428	3505	3578	3653	3727	3802	3877	3951	4027	4101	7	15	22	30	37	45	52	60	67	
581	4176	4251	4326	4400	4475	4550	4624	4699	4774	4848	7	15	22	30	37	45	52	60	67	
582	4923	4998	5072	5147	5221	5296	5371	5445	5520	5594	7	15	22	30	37	45	52	60	67	
583	5669	5743	5818	5892	5966	6041	6115	6190	6264	6339	7	15	22	30	37	45	52	60	67	
584	6413	6487	6562	6636	6710	6785	6859	6933	7007	7082	7	15	22	30	37	45	52	60	67	
585	7671	7745	7820	7894	7969	8043	8117	8192	8266	8341	7	15	22	30	37	45	52	59	67	
586	7698	7772	8046	8120	8194	8268	8342	8416	8490	8564	7	15	22	30	37	45	52	59	67	
587	8638	8712	8786	8860	8934	9008	9082	9156	9230	9304	7	15	22	30	37	45	52	59	67	
588	9377	9451	9525	9599	9673	9747	9821	9895	9969	10000	7	15	22	30	37	45	52	59	67	
589	7701	7775	7849	7923	7997	8071	8145	8219	8293	8367	7	15	22	30	37	45	52	59	67	
590	7708	7782	7856	7930	8004	8078	8152	8226	8300	8374	7	15	22	30	37	45	52	59	67	
591	8588	8662	8736	8810	8884	8958	9032	9106	9180	9254	7	15	22	30	37	44	52	59	67	
592	2322	2396	2468	2541	2615	2688	2762	2835	2908	2981	7	15	22	29	37	44	51	59	66	
593	3055	3128	3201	3274	3347	3421	3494	3567	3640	3713	7	15	22	29	37	44	51	59	66	
594	3786	3860	3933	4006	4079	4152	4225	4298	4371	4444	7	15	22	29	37	44	51	59	66	
595	7745	7819	7893	7967	8041	8115	8189	8263	8337	8411	7	15	22	29	37	44	51	59	66	
596	5246	5320	5394	5468	5542	5616	5690	5764	5838	5912	7	15	22	29	37	44	51	59	66	
597	5974	6047	6120	6193	6266	6339	6412	6485	6558	6631	7	15	22	29	37	44	51	59	66	
598	6701	6774	6847	6920	6993	7066	7139	7212	7285	7358	7	14	22	29	36	43	51	58	65	
599	7427	7499	7572	7644	7717	7790	7863	7936	8009	8079	7	14	22	29	36	43	51	58	65	
600	7781	7854	7927	8000	8073	8146	8219	8292	8365	8438	7	14	22	29	36	43	51	58	65	
601	8875	8948	9021	9094	9167	9240	9313	9386	9459	9532	7	14	22	29	36	43	51	58	65	
602	9597	9670	9743	9816	9889	9962	10000	10000	10000	10000	7	14	22	29	36	43	50	58	65	
603	7803	7876	7949	8022	8095	8168	8241	8314	8387	8460	7	14	22	29	36	43	50	58	65	
604	8037	8110	8183	8256	8329	8402	8475	8548	8621	8694	7	14	22	29	36	43	50	58	65	
605	7815	7888	7961	8034	8107	8180	8253	8326	8399	8472	7	14	22	29	36	43	50	58	65	
606	2473	2546	2619	2692	2765	2838	2911	2984	3057	3130	7	14	21	29	36	43	50	57	64	
607	3189	3262	3335	3408	3481	3554	3627	3700	3773	3846	7	14	21	29	36	43	50	57	64	
608	3904	3977	4050	4123	4196	4269	4342	4415	4488	4561	7	14	21	29	36	43	50	57	64	
609	4617	4690	4763	4836	4909	4982	5055	5128	5201	5274	7	14	21	29	36	43	50	57	64	
610	7853	7926	7999	8072	8145	8218	8291	8364	8437	8510	7	14	21	28	35	42	49	56	63	
611	6041	6114	6187	6260	6333	6406	6479	6552	6625	6698	7	14	21	28	35	42	49	56	63	
612	6751	6824	6897	6970	7043	7116	7189	7262	7335	7408	7	14	21	28	35	42	49	56	63	
613	7461	7534	7607	7680	7753	7826	7899	7972	8045	8118	7	14	21	28	35	42	49	56	63	
614	8168	8241	8314	8387	8460	8533	8606	8679	8752	8825	7	14	21	28	35	42	49	56	63	
615	7888	7961	8034	8107	8180	8253	8326	8399	8472	8545	7	14	21	28	35	42	49	56	63	
616	9581	9654	9727	9800	9873	9946	10000	10000	10000	10000	7	14	21	28	35	42	49	56	63	
617	7902	7975	8048	8121	8194	8267	8340	8413	8486	8559	7	14	21	28	35	42	49	56	63	
618	0089	1059	1129	1199	1270	1340	1410	1480	1550	1621	7	14	21	28	35	42	49	56	63	
619	1691	1761	1831	1901	1971	2041	2111	2181	2251	2322	7	14	21	28	35	42	49	56	63	
620	7923	7996	8069	8142	8215	8288	8361	8434	8507	8580	7	14	21	28	35	42	49	56	63	
621	3092	3165	3238	3311	3384	3457	3530	3603	3676	3749	7	14	21	28	35	42	49	56	63	
622	3790	3863	3936	4009	4082	4155	4228	4301	4374	4447	7	14	21	28	35	42	49	56	63	
623	4488	4561	4634	4707	4780	4853	4926	4999	5072	5145	7	14	21	28	35	42	49	56	63	
624	5185	5258	5331	5404	5477	5550	5623	5696	5769	5842	7	14	21	28	35	42	49	56	63	
625	7958	8031	8104	8177	8250	8323	8396	8469	8542	8615	7	14	21	28	35	42	49	56	63	
626	6574	6647	6720	6793	6866	6939	7012	7085	7158	7231	7	14	21	28	35	42	49	56	63	
627	7268	7341	7414	7487	7560	7633	7706	7779	7852	7925	7	14	21	28	35	42	49	56	63	
628	7960	8033	8106	8179	8252	8325	8398	8471	8544	8617	7	14	21	28	34	41	48	55	62	
629	8651	8724	8797	8870	8943	9016	9089	9162	9235	9308	7	14	21	28	34	41	48	55	62	
630	7993	8066	8139	8212	8285	8358	8431	8504	8577	8650	7	14	21	28	34	41	48	55	62	
631	8000	8073	8146	8219	8292	8365	8438	8511	8584	8657	7	14	21	28	34	41	48	55	62	
632	0717	0790	0863	0936	1009	1082	1155	1228	1301	1374	7	14	21	28	34	41	48	55	62	
633	1404	1477	1550	1623	1696	1769	1842	1915	1988	2061	7	14	21	27	34	41	48	55	62	
634	2089	2162	2235	2308	2381	2454	2527	2600	2673	2746	7	14	21	27	34	41	48	55	62	
635	8027	8100	8173	8246	8319	8392	8465	8538	8611	8684	7	14	21	27	34	41	48	55	62	
636	3457	3530	3603	3676	3749	3822	3895	3968	4041	4114	7	14	21	27	34	41	48	55	62	
637	4139	4212	4285	4358	4431	4504	4577	4650	4723	4796	7	14	21	27	34	41	48	55	62	
638	4821	4894	4967	5040	5113	5186	5259	5332	5405	5478	7	14	20	27	34	41	48	54	61	
639	5501	5574	5647	5720	5793	5866	5939	6012	6085	6158	7	14	20	27	34	41	48	54	61	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.											Proportional parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
640	806180	6248	6316	6384	6451	6519	6587	6655	6723	6790	7	14	20	27	34	41	48	54	61	
641	6858	6926	6994	7061	7129	7197	7264	7332	7400	7467	7	14	20	27	34	41	48	54	61	
642	7535	7603	7670	7738	7806	7873	7941	8008	8076	8143	7	14	20	27	34	41	48	54	61	
643	8211	8279	8346	8414	8481	8549	8616	8684	8751	8818	7	14	20	27	34	41	48	54	61	
644	8886	8953	9021	9088	9156	9223	9290	9358	9425	9492	7	13	20	27	34	40	47	54	61	
645	809560	9627	9694	9762	9829	9896	9964	10031	10098	10165	7	13	20	27	34	40	47	54	61	
646	810233	0300	0367	0434	0501	0568	0636	0703	0770	0837	7	13	20	27	33	40	47	54	60	
647	0904	0971	1039	1106	1173	1240	1307	1374	1441	1508	7	13	20	27	33	40	47	54	60	
648	1575	1642	1709	1776	1843	1910	1977	2044	2111	2178	7	13	20	27	33	40	47	54	60	
649	2245	2312	2379	2445	2512	2579	2646	2713	2780	2847	7	13	20	27	33	40	47	54	60	
650	812913	2980	3047	3114	3181	3247	3314	3381	3448	3514	7	13	20	27	33	40	47	54	60	
651	3581	3648	3714	3781	3848	3914	3981	4048	4114	4181	7	13	20	27	33	40	47	54	60	
652	4248	4314	4381	4447	4514	4581	4647	4714	4780	4847	7	13	20	26	33	40	46	53	60	
653	4913	4980	5046	5113	5179	5246	5312	5379	5445	5511	7	13	20	26	33	40	46	53	60	
654	5578	5644	5711	5777	5843	5910	5976	6042	6109	6175	7	13	20	26	33	40	46	53	60	
655	816241	6308	6374	6440	6506	6573	6639	6705	6771	6838	7	13	20	26	33	40	46	53	60	
656	6904	6970	7036	7102	7169	7235	7301	7367	7433	7499	7	13	20	26	33	40	46	53	59	
657	7565	7632	7698	7764	7830	7896	7962	8028	8094	8160	7	13	20	26	33	40	46	53	59	
658	8226	8292	8358	8424	8490	8556	8622	8688	8754	8820	7	13	20	26	33	40	46	53	59	
659	8885	8951	9017	9083	9149	9215	9281	9347	9412	9478	7	13	20	26	33	40	46	53	59	
660	819544	9610	9676	9741	9807	9873	9939	10004	10070	10136	7	13	20	26	33	40	46	53	59	
661	820202	0267	0333	0399	0464	0530	0596	0661	0727	0792	7	13	20	26	33	40	46	53	59	
662	0858	0924	0989	1055	1120	1186	1251	1317	1383	1448	7	13	20	26	33	40	46	53	59	
663	1514	1579	1645	1710	1776	1841	1906	1972	2037	2103	7	13	20	26	33	39	46	52	59	
664	2168	2234	2299	2364	2430	2495	2560	2626	2691	2756	7	13	20	26	33	39	46	52	59	
665	822822	2887	2952	3018	3083	3148	3213	3279	3344	3409	7	13	20	26	33	39	46	52	59	
666	3474	3539	3605	3670	3735	3800	3865	3931	3996	4061	7	13	20	26	33	39	46	52	59	
667	4126	4191	4256	4321	4386	4451	4516	4581	4646	4711	6	13	19	26	32	39	45	52	58	
668	4777	4842	4907	4972	5036	5101	5166	5231	5296	5361	6	13	19	26	32	39	45	52	58	
669	5426	5491	5556	5621	5686	5751	5815	5880	5945	6010	6	13	19	26	32	39	45	52	58	
670	826075	6140	6204	6269	6334	6399	6464	6528	6593	6658	6	13	19	26	32	39	45	52	58	
671	6723	6787	6852	6917	6981	7046	7111	7175	7240	7305	6	13	19	26	32	39	45	52	58	
672	7369	7434	7499	7563	7628	7692	7757	7821	7886	7951	6	13	19	26	32	39	45	52	58	
673	8015	8080	8144	8209	8273	8338	8402	8467	8531	8596	6	13	19	26	32	39	45	52	58	
674	8660	8724	8789	8853	8918	8982	9046	9111	9175	9239	6	13	19	26	32	39	45	52	58	
675	829304	9368	9432	9497	9561	9625	9690	9754	9818	9882	6	13	19	26	32	39	45	52	58	
676	9947	10011	10075	10139	10204	10268	10332	10396	10460	10525	6	13	19	26	32	39	45	51	58	
677	830589	0653	0717	0781	0845	0909	0973	1038	1102	1166	6	13	19	26	32	38	45	51	58	
678	1230	1294	1358	1422	1486	1550	1614	1678	1742	1806	6	13	19	26	32	38	45	51	58	
679	1870	1934	1998	2062	2126	2190	2253	2317	2381	2445	6	13	19	26	32	38	45	51	58	
680	832599	2573	2637	2701	2764	2828	2892	2956	3020	3083	6	13	19	26	32	38	45	51	58	
681	3147	3211	3275	3338	3402	3466	3530	3593	3657	3721	6	13	19	26	32	38	45	51	58	
682	3784	3848	3912	3975	4039	4103	4166	4230	4294	4357	6	13	19	26	32	38	45	51	58	
683	4421	4484	4548	4611	4675	4739	4802	4866	4929	4993	6	13	19	26	32	38	45	51	58	
684	5056	5120	5183	5247	5310	5374	5437	5500	5564	5627	6	13	19	26	32	38	45	51	58	
685	835691	5754	5817	5881	5944	6008	6071	6134	6198	6261	6	13	19	26	32	38	45	51	58	
686	6324	6387	6451	6514	6577	6641	6704	6767	6830	6894	6	13	19	26	32	38	45	51	58	
687	6957	7020	7083	7146	7210	7273	7336	7399	7462	7525	6	13	19	25	32	38	44	51	57	
688	7588	7651	7715	7778	7841	7904	7967	8030	8093	8156	6	13	19	25	32	38	44	50	57	
689	8219	8282	8345	8408	8471	8534	8597	8660	8723	8786	6	13	19	25	32	38	44	50	57	
690	838849	8912	8975	9038	9101	9164	9227	9290	9352	9415	6	13	19	25	31	38	44	50	57	
691	9478	9541	9604	9667	9729	9792	9855	9918	9981	10043	6	13	19	25	31	38	44	50	57	
692	840106	0169	0232	0295	0357	0420	0483	0545	0608	0671	6	13	19	25	31	38	44	50	57	
693	0733	0796	0859	0921	0984	1047	1109	1172	1234	1297	6	13	19	25	31	38	44	50	57	
694	1360	1422	1485	1547	1610	1672	1735	1797	1860	1922	6	13	19	25	31	38	44	50	57	
695	841085	2047	2110	2172	2235	2297	2360	2422	2484	2547	6	12	19	25	31	37	44	50	56	
696	2609	2672	2734	2796	2859	2921	2984	3046	3108	3171	6	12	19	25	31	37	44	50	56	
697	3233	3295	3357	3420	3482	3544	3607	3669	3731	3793	6	12	19	25	31	37	43	50	56	
698	3855	3918	3980	4042	4104	4166	4229	4291	4353	4415	6	12	19	25	31	37	43	50	56	
699	4477	4539	4601	4664	4726	4788	4850	4912	4974	5036	6	12	19	25	31	37	43	50	56	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts.									
1	2	3	4	5	6	7	8	9												

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.											Proportional Parts.									
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700	845098	5160	5222	5284	5346	5408	5470	5532	5594	5656	6	12	19	25	31	37	43	50	56	
701	5718	5780	5842	5904	5966	6028	6090	6152	6213	6275	6	12	19	25	31	37	43	50	56	
702	6337	6399	6461	6523	6585	6646	6708	6770	6832	6894	6	12	19	25	31	37	43	50	56	
703	6955	7017	7079	7141	7202	7264	7326	7388	7449	7511	6	12	19	25	31	37	43	50	56	
704	7573	7634	7696	7758	7819	7881	7943	8004	8066	8128	6	12	18	25	31	37	43	49	55	
705	8488	8549	8611	8674	8736	8798	8859	8920	8982	9043	6	12	18	25	31	37	43	49	55	
706	8805	8866	8928	8989	9051	9112	9174	9235	9297	9358	6	12	18	25	31	37	43	49	55	
707	9419	9481	9542	9604	9665	9726	9788	9849	9911	9972	6	12	18	25	31	37	43	49	55	
708	8500	0039	0056	0217	0279	0340	0401	0462	0524	0585	6	12	18	25	31	37	43	49	55	
709	0646	0708	0769	0830	0891	0952	1014	1075	1136	1197	6	12	18	25	31	37	43	49	55	
710	8512	1258	1320	1381	1442	1503	1564	1625	1686	1747	1809	6	12	18	25	31	37	43	49	55
711	1870	1931	1992	2053	2114	2175	2236	2297	2358	2419	6	12	18	25	31	37	43	49	55	
712	2480	2541	2602	2663	2724	2785	2846	2907	2968	3029	6	12	18	24	30	37	43	49	55	
713	3090	3150	3211	3272	3333	3394	3455	3516	3577	3637	6	12	18	24	30	37	43	49	55	
714	3698	3759	3820	3881	3941	4002	4063	4124	4185	4245	6	12	18	24	30	37	43	49	55	
715	8543	0637	4428	4488	4549	4610	4670	4731	4792	4852	6	12	18	24	30	36	42	48	54	
716	4913	4974	5034	5095	5156	5216	5277	5337	5398	5459	6	12	18	24	30	36	42	48	54	
717	5519	5580	5640	5701	5761	5822	5882	5943	6004	6064	6	12	18	24	30	36	42	48	54	
718	6124	6185	6245	6306	6366	6427	6487	6548	6608	6669	6	12	18	24	30	36	42	48	54	
719	6729	6789	6850	6910	6970	7031	7091	7152	7212	7272	6	12	18	24	30	36	42	48	54	
720	8573	3337	7393	7453	7513	7574	7634	7694	7755	7815	7875	6	12	18	24	30	36	42	48	54
721	7935	7996	8056	8116	8176	8236	8297	8357	8417	8477	6	12	18	24	30	36	42	48	54	
722	8537	8597	8658	8718	8778	8838	8898	8958	9018	9078	6	12	18	24	30	36	42	48	54	
723	9138	9198	9258	9319	9379	9439	9499	9559	9619	9679	6	12	18	24	30	36	42	48	54	
724	9739	9799	9859	9919	9978	●●38	●●98	●158	●218	●278	6	12	18	24	30	36	42	48	54	
725	8603	3382	0398	0458	0518	0578	0637	0697	0757	0817	0877	6	12	18	24	30	36	42	48	54
726	0937	0996	1056	1116	1176	1236	1295	1355	1415	1475	6	12	18	24	30	36	42	48	54	
727	1534	1594	1654	1714	1773	1833	1893	1952	2012	2072	6	12	18	24	30	36	42	48	54	
728	2131	2191	2251	2310	2370	2430	2489	2549	2608	2668	6	12	18	24	30	36	42	48	54	
729	2728	2787	2847	2906	2966	3025	3085	3144	3204	3263	6	12	18	24	30	36	42	48	54	
730	8633	2372	3442	3501	3561	3620	3680	3739	3799	3858	6	12	18	24	30	36	42	48	54	
731	3917	3977	4036	4096	4155	4214	4274	4333	4392	4452	6	12	18	24	30	36	42	48	54	
732	4511	4570	4630	4689	4748	4808	4867	4926	4986	5045	6	12	18	24	30	36	42	48	54	
733	5104	5163	5223	5282	5341	5400	5459	5519	5578	5637	6	12	18	24	30	36	42	48	54	
734	5696	5755	5814	5874	5933	5992	6051	6110	6169	6228	6	12	18	24	30	36	42	48	54	
735	8662	8736	6406	6465	6524	6583	6642	6701	6760	6819	6	12	18	24	30	35	41	47	53	
736	6878	6937	6996	7055	7114	7173	7232	7291	7350	7409	6	12	18	24	29	35	41	47	53	
737	7468	7526	7585	7644	7703	7762	7821	7880	7939	7998	6	12	18	24	29	35	41	47	53	
738	8056	8115	8174	8233	8292	8351	8409	8468	8527	8586	6	12	18	24	29	35	41	47	53	
739	8644	8703	8762	8821	8879	8938	8997	9056	9114	9173	6	12	18	24	29	35	41	47	53	
740	8692	3290	9349	9408	9466	9525	9584	9642	9701	9760	6	12	18	24	29	35	41	47	53	
741	9818	9877	9935	9994	●●53	●●11	●170	●228	●287	●345	6	12	18	24	29	35	41	47	53	
742	8704	0462	0521	0579	0638	0697	0755	0813	0872	0930	6	12	18	24	29	35	41	47	53	
743	0989	1047	1106	1164	1223	1281	1339	1398	1456	1515	6	12	18	24	29	35	41	47	53	
744	1573	1631	1690	1748	1806	1865	1923	1981	2040	2098	6	12	18	23	29	35	41	47	53	
745	8721	5615	2273	2331	2389	2448	2506	2564	2622	2681	6	12	18	23	29	35	41	47	53	
746	2739	2797	2855	2913	2972	3030	3088	3146	3204	3263	6	12	18	23	29	35	41	47	53	
747	3321	3379	3437	3495	3553	3611	3669	3727	3786	3844	6	12	18	23	29	35	41	47	53	
748	3902	3960	4018	4076	4134	4192	4250	4308	4366	4424	6	12	17	23	29	35	41	46	52	
749	4482	4540	4598	4656	4714	4772	4830	4888	4945	5003	6	12	17	23	29	35	41	46	52	
750	8750	6061	5119	5177	5235	5293	5351	5409	5466	5524	6	12	17	23	29	35	41	46	52	
751	5640	5698	5756	5813	5871	5929	5987	6045	6102	6160	6	12	17	23	29	35	41	46	52	
752	6218	6276	6333	6391	6449	6507	6564	6622	6680	6737	6	12	17	23	29	34	40	46	52	
753	6795	6853	6910	6968	7026	7083	7141	7199	7256	7314	6	12	17	23	29	34	40	46	52	
754	7371	7429	7487	7544	7602	7659	7717	7774	7832	7889	6	12	17	23	29	34	40	46	52	
755	8779	8005	8062	8120	8177	8235	8292	8349	8407	8464	6	12	17	23	29	34	40	46	52	
756	8522	8579	8637	8694	8752	8809	8866	8924	8981	9039	6	12	17	23	29	34	40	46	52	
757	9096	9153	9211	9268	9325	9383	9440	9497	9555	9612	6	12	17	23	29	34	40	46	52	
758	9669	9727	9784	9841	9898	9956	●●13	●●70	●127	●185	6	11	17	23	28	34	40	46	51	
759	8802	4242	0299	0356	0413	0471	0528	0585	0642	0699	0756	6	11	17	23	28	34	40	46	51
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
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LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.											Proportional parts.									
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760	880814	0871	0928	0985	1042	1099	1156	1213	1271	1328	6	11	17	23	28	34	40	46	51	
761	1385	1442	1499	1556	1613	1670	1727	1784	1841	1898	6	11	17	23	28	34	40	46	51	
762	1955	2012	2069	2126	2183	2240	2297	2354	2411	2468	6	11	17	23	28	34	40	46	51	
763	2525	2582	2638	2695	2752	2809	2866	2923	2980	3037	6	11	17	23	28	34	40	46	51	
764	3093	3150	3207	3264	3321	3378	3434	3491	3548	3605	6	11	17	23	28	34	40	46	51	
765	883661	3718	3775	3832	3889	3945	4002	4059	4115	4172	6	11	17	23	28	34	40	46	51	
766	4229	4286	4342	4399	4456	4512	4569	4626	4682	4739	6	11	17	23	28	34	40	46	51	
767	4795	4852	4909	4965	5022	5078	5135	5192	5248	5305	6	11	17	23	28	34	40	46	51	
768	5361	5418	5474	5531	5587	5644	5700	5757	5813	5870	6	11	17	23	28	34	39	45	51	
769	5926	5983	6039	6096	6152	6209	6265	6322	6378	6434	6	11	17	23	28	34	39	45	51	
770	886491	6547	6604	6660	6716	6773	6829	6885	6942	6998	6	11	17	23	28	34	39	45	51	
771	7054	7111	7167	7223	7280	7336	7392	7449	7505	7561	6	11	17	23	28	34	39	45	51	
772	7617	7674	7730	7786	7842	7899	7955	8011	8067	8123	6	11	17	23	28	34	39	45	51	
773	8180	8236	8292	8348	8404	8460	8517	8573	8629	8685	6	11	17	22	28	34	39	45	50	
774	8741	8797	8853	8909	8965	9021	9078	9134	9190	9246	6	11	17	22	28	34	39	45	50	
775	889302	9358	9414	9470	9526	9582	9638	9694	9750	9806	6	11	17	22	28	34	39	45	50	
776	9862	9918	9974	●●30	●●86	●●142	●●197	●●253	●●309	●●365	6	11	17	22	28	34	39	45	50	
777	890421	0477	0533	0589	0645	0700	0756	0812	0868	0924	6	11	17	22	28	34	39	45	50	
778	0980	1035	1091	1147	1203	1259	1314	1370	1426	1482	6	11	17	22	28	34	39	45	50	
779	1538	1593	1649	1705	1760	1816	1872	1928	1983	2039	6	11	17	22	28	33	39	44	50	
780	892095	2150	2206	2262	2317	2373	2429	2484	2540	2595	6	11	17	22	28	33	39	44	50	
781	2651	2707	2762	2818	2873	2929	2985	3040	3096	3151	6	11	17	22	28	33	39	44	50	
782	3207	3262	3318	3373	3429	3484	3540	3595	3651	3706	6	11	17	22	28	33	39	44	50	
783	3762	3817	3873	3928	3984	4039	4094	4150	4205	4261	6	11	17	22	28	33	39	44	50	
784	4316	4372	4427	4482	4538	4593	4648	4704	4759	4814	6	11	17	22	27	33	39	44	50	
785	894870	4925	4980	5036	5091	5146	5202	5257	5312	5367	6	11	17	22	27	33	39	44	50	
786	5423	5478	5533	5588	5644	5699	5754	5809	5864	5920	6	11	17	22	27	33	39	44	50	
787	5975	6030	6085	6140	6195	6251	6306	6361	6416	6471	6	11	17	22	27	33	39	44	50	
788	6526	6581	6636	6692	6747	6802	6857	6912	6967	7022	6	11	17	22	27	33	39	44	50	
789	7077	7132	7187	7242	7297	7352	7407	7462	7517	7572	6	11	17	22	27	33	39	44	50	
790	897627	7682	7737	7792	7847	7902	7957	8012	8067	8122	6	11	17	22	27	33	39	44	50	
791	8177	8231	8286	8341	8396	8451	8506	8561	8616	8670	6	11	17	22	27	33	39	44	50	
792	8725	8780	8835	8890	8945	8999	9054	9109	9164	9218	5	11	17	22	27	33	38	44	50	
793	9273	9328	9383	9438	9492	9547	9602	9656	9711	9766	5	11	17	22	27	33	38	44	50	
794	9821	9875	9930	9985	●●39	●●94	●●149	●●203	●●258	●●313	5	11	17	22	27	33	38	44	50	
795	900367	0422	0476	0531	0586	0640	0695	0749	0804	0859	5	11	17	22	27	33	38	44	50	
796	0913	0968	1022	1077	1131	1186	1240	1295	1349	1404	5	11	16	22	27	33	38	44	49	
797	1458	1513	1567	1622	1676	1731	1785	1840	1894	1949	5	11	16	22	27	33	38	44	49	
798	2003	2057	2112	2166	2221	2275	2329	2384	2438	2492	5	11	16	22	27	33	38	44	49	
799	2547	2601	2656	2710	2764	2819	2873	2927	2981	3036	5	11	16	22	27	33	38	44	49	
800	903090	3144	3199	3253	3307	3361	3416	3470	3524	3578	5	11	16	22	27	32	38	43	49	
801	3633	3687	3741	3795	3849	3904	3958	4012	4066	4120	5	11	16	22	27	32	38	43	49	
802	4174	4229	4283	4337	4391	4445	4499	4553	4607	4662	5	11	16	22	27	32	38	43	49	
803	4716	4770	4824	4878	4932	4986	5040	5094	5148	5202	5	11	16	22	27	32	38	43	49	
804	5256	5310	5364	5418	5472	5526	5580	5634	5688	5742	5	11	16	22	27	32	38	43	49	
805	905796	5850	5904	5958	6012	6066	6120	6173	6227	6281	5	11	16	22	27	32	38	43	49	
806	6335	6389	6443	6497	6551	6604	6658	6712	6766	6820	5	11	16	22	27	32	38	43	49	
807	6874	6927	6981	7035	7089	7143	7196	7250	7304	7358	5	11	16	22	27	32	38	43	49	
808	7411	7465	7519	7573	7626	7680	7734	7787	7841	7895	5	11	16	22	27	32	38	43	49	
809	7949	8002	8056	8110	8163	8217	8271	8324	8378	8431	5	11	16	22	27	32	38	43	49	
810	908485	8539	8592	8646	8699	8753	8807	8860	8914	8967	5	11	16	21	27	32	37	43	48	
811	9021	9074	9128	9182	9235	9289	9342	9396	9449	9503	5	11	16	21	27	32	37	43	48	
812	9556	9610	9663	9717	9770	9823	9877	9930	9984	●●37	5	11	16	21	27	32	37	43	48	
813	910091	0144	0197	0251	0304	0358	0411	0464	0518	0571	5	11	16	21	27	32	37	43	48	
814	0624	0678	0731	0784	0838	0891	0944	0998	1051	1104	5	11	16	21	27	32	37	43	48	
815	911158	1211	1264	1317	1371	1424	1477	1531	1584	1637	5	11	16	21	27	32	37	42	48	
816	1690	1743	1797	1850	1903	1956	2009	2063	2116	2169	5	11	16	21	27	32	37	42	48	
817	2222	2275	2328	2382	2435	2488	2541	2594	2647	2700	5	11	16	21	27	32	37	42	48	
818	2753	2806	2860	2913	2966	3019	3072	3125	3178	3231	5	11	16	21	27	32	37	42	48	
819	3284	3337	3390	3443	3496	3549	3602	3655	3708	3761	5	11	16	21	27	32	37	42	48	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts.									
										1	2	3	4	5	6	7	8	9		

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.	0 1 2 3 4 5 6 7 8 9										Proportional Parts.									
	i	2	3	4	5	6	7	8	9											
820	913814	3867	3920	3973	4026	4079	4132	4184	4237	4290	5	11	16	21	27	32	37	42	48	
821	4343	4396	4449	4502	4555	4608	4660	4713	4766	4819	5	11	16	21	27	32	37	42	48	
822	4872	4925	4978	5030	5083	5136	5189	5242	5294	5347	5	11	16	21	27	32	37	42	48	
823	5400	5453	5505	5558	5611	5664	5716	5769	5822	5875	5	11	16	21	27	32	37	42	48	
824	5927	5980	6033	6085	6138	6191	6243	6296	6349	6401	5	11	16	21	27	32	37	42	48	
825	916454	6507	6559	6612	6665	6717	6770	6822	6875	6928	5	11	16	21	26	31	37	42	47	
826	6980	7033	7085	7138	7190	7243	7295	7348	7401	7453	5	11	16	21	26	31	37	42	47	
827	7506	7558	7611	7663	7716	7768	7821	7873	7925	7978	5	11	16	21	26	31	37	42	47	
828	8030	8083	8135	8188	8240	8293	8345	8397	8450	8502	5	11	16	21	26	31	37	42	47	
829	8555	8607	8659	8712	8764	8816	8869	8921	8973	9026	5	11	16	21	26	31	37	42	47	
830	919078	9130	9183	9235	9287	9340	9392	9444	9497	9549	5	11	16	21	26	31	37	42	47	
831	9601	9653	9706	9758	9810	9862	9915	9967	●●19	●●71	5	11	16	21	26	31	37	42	47	
832	920123	0176	0228	0280	0332	0384	0436	0489	0541	0593	5	10	16	21	26	31	36	42	47	
833	0645	0697	0749	0801	0854	0906	0958	1010	1062	1114	5	10	16	21	26	31	36	42	47	
834	1166	1218	1270	1322	1374	1426	1478	1530	1582	1635	5	10	16	21	26	31	36	42	47	
835	921687	1739	1791	1843	1895	1947	1998	2050	2102	2154	5	10	16	21	26	31	36	42	47	
836	2206	2258	2310	2362	2414	2466	2518	2570	2622	2674	5	10	16	21	26	31	36	42	47	
837	2726	2777	2829	2881	2933	2985	3037	3089	3140	3192	5	10	16	21	26	31	36	42	47	
838	3244	3296	3348	3400	3451	3503	3555	3607	3658	3710	5	10	16	21	26	31	36	42	47	
839	3762	3814	3866	3917	3969	4021	4072	4124	4176	4228	5	10	16	21	26	31	36	42	47	
840	924279	4331	4383	4434	4486	4538	4589	4641	4693	4744	5	10	15	21	26	31	36	41	46	
841	4796	4848	4899	4951	5003	5054	5106	5157	5209	5261	5	10	15	21	26	31	36	41	46	
842	5312	5364	5415	5467	5518	5570	5622	5673	5725	5776	5	10	15	21	26	31	36	41	46	
843	5828	5879	5931	5982	6034	6085	6137	6188	6240	6291	5	10	15	21	26	31	36	41	46	
844	6342	6394	6445	6497	6548	6600	6651	6703	6754	6805	5	10	15	21	26	31	36	41	46	
845	926857	6908	6960	7011	7062	7114	7165	7216	7268	7319	5	10	15	21	26	31	36	41	46	
846	7370	7422	7473	7524	7576	7627	7678	7730	7781	7832	5	10	15	21	26	31	36	41	46	
847	7883	7935	7986	8037	8089	8140	8191	8242	8293	8345	5	10	15	21	26	31	36	41	46	
848	8396	8447	8498	8550	8601	8652	8703	8754	8805	8857	5	10	15	21	26	31	36	41	46	
849	8908	8959	9010	9061	9112	9163	9215	9266	9317	9368	5	10	15	20	26	31	36	41	46	
850	929419	9470	9521	9572	9623	9674	9725	9776	9828	9879	5	10	15	20	26	31	36	41	46	
851	9930	9981	●●32	●●83	●134	●185	●236	●287	●338	●389	5	10	15	20	26	31	36	41	46	
852	930440	0491	0542	0593	0643	0694	0745	0796	0847	0898	5	10	15	20	25	31	36	41	46	
853	0949	1000	1051	1102	1153	1204	1254	1305	1356	1407	5	10	15	20	25	31	36	41	46	
854	1458	1509	1560	1610	1661	1712	1763	1814	1865	1915	5	10	15	20	25	31	36	41	46	
855	931966	2017	2068	2119	2169	2220	2271	2322	2372	2423	5	10	15	20	25	30	35	40	45	
856	2474	2525	2575	2626	2677	2727	2778	2829	2880	2930	5	10	15	20	25	30	35	40	45	
857	2981	3032	3082	3133	3184	3234	3285	3335	3386	3437	5	10	15	20	25	30	35	40	45	
858	3487	3538	3589	3639	3690	3740	3791	3842	3892	3943	5	10	15	20	25	30	35	40	45	
859	3993	4044	4094	4145	4195	4246	4296	4347	4397	4448	5	10	15	20	25	30	35	40	45	
860	934499	4549	4599	4650	4700	4751	4801	4852	4902	4953	5	10	15	20	25	30	35	40	45	
861	5003	5054	5104	5154	5205	5255	5306	5356	5407	5457	5	10	15	20	25	30	35	40	45	
862	5507	5558	5608	5658	5709	5759	5810	5860	5910	5961	5	10	15	20	25	30	35	40	45	
863	6011	6061	6111	6162	6212	6262	6313	6363	6413	6464	5	10	15	20	25	30	35	40	45	
864	6514	6564	6614	6665	6715	6765	6815	6866	6916	6966	5	10	15	20	25	30	35	40	45	
865	937016	7066	7117	7167	7217	7267	7317	7367	7418	7468	5	10	15	20	25	30	35	40	45	
866	7518	7568	7618	7668	7718	7769	7819	7869	7919	7969	5	10	15	20	25	30	35	40	45	
867	8019	8069	8119	8169	8219	8270	8320	8370	8420	8470	5	10	15	20	25	30	35	40	45	
868	8520	8570	8620	8670	8720	8770	8820	8870	8920	8970	5	10	15	20	25	30	35	40	45	
869	9020	9070	9120	9170	9220	9270	9320	9370	9419	9469	5	10	15	20	25	30	35	40	45	
870	939519	9569	9619	9669	9719	9769	9819	9869	9918	9968	5	10	15	20	25	30	35	40	45	
871	940018	0068	0118	0168	0218	0267	0317	0367	0417	0467	5	10	15	20	25	30	35	40	45	
872	0517	0566	0616	0666	0716	0765	0815	0865	0915	0965	5	10	15	20	25	30	35	40	45	
873	1014	1064	1114	1164	1213	1263	1313	1362	1412	1462	5	10	15	20	25	30	35	40	45	
874	1511	1561	1611	1661	1710	1760	1810	1859	1909	1958	5	10	15	20	25	30	35	40	45	
875	942008	2058	2107	2157	2207	2256	2306	2355	2405	2455	5	10	15	20	25	30	35	40	45	
876	2504	2554	2603	2653	2702	2752	2802	2851	2901	2950	5	10	15	20	25	30	35	40	45	
877	3000	3049	3099	3148	3198	3247	3297	3346	3396	3445	5	10	15	20	25	30	35	40	45	
878	3495	3544	3593	3643	3692	3742	3791	3841	3890	3940	5	10	15	20	25	30	35	40	45	
879	3989	4038	4088	4137	4187	4236	4285	4335	4384	4433	5	10	15	20	25	30	35	40	45	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
1	2	3	4	5	6	7	8	9												

LOGARITHMS OF NUMBERS, FROM 1 TO 999999; PART THE FIRST.

Nat. No.											Proportional Parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
880	944483	4532	4581	4631	4680	4729	4779	4828	4877	4927	5	10	15	20	25	30	35	40	45	
881	4976	5025	5075	5124	5173	5222	5272	5321	5370	5419	5	10	15	20	25	30	35	40	45	
882	5469	5518	5567	5616	5666	5715	5764	5813	5862	5912	5	10	15	20	25	29	34	39	44	
883	5961	6010	6059	6108	6157	6207	6256	6305	6354	6403	5	10	15	20	25	29	34	39	44	
884	6452	6501	6551	6600	6649	6698	6747	6796	6845	6894	5	10	15	20	25	29	34	39	44	
885	949493	6992	7041	7091	7140	7189	7238	7287	7336	7385	5	10	15	20	25	29	34	39	44	
886	7434	7483	7532	7581	7630	7679	7728	7777	7826	7875	5	10	15	20	25	29	34	39	44	
887	7924	7973	8022	8071	8119	8168	8217	8266	8315	8364	5	10	15	20	25	29	34	39	44	
888	8413	8462	8511	8560	8609	8657	8706	8755	8804	8853	5	10	15	20	25	29	34	39	44	
889	8902	8951	9000	9048	9097	9146	9195	9244	9292	9341	5	10	15	20	25	29	34	39	44	
890	949399	9439	9488	9536	9585	9634	9683	9732	9780	9829	5	10	15	20	25	29	34	39	44	
891	9878	9926	9975	10024	10073	10121	10170	10219	10268	10316	5	10	15	20	25	29	34	39	44	
892	950365	0414	0462	0511	0560	0608	0657	0706	0754	0803	5	10	15	19	24	29	34	39	44	
893	0852	0900	0949	0997	1046	1095	1143	1192	1240	1289	5	10	15	19	24	29	34	39	44	
894	1338	1386	1435	1483	1532	1580	1629	1677	1726	1775	5	10	15	19	24	29	34	39	44	
895	951823	1872	1920	1969	2017	2066	2114	2163	2211	2260	5	10	15	19	24	29	34	39	44	
896	2308	2357	2405	2453	2502	2550	2599	2647	2696	2744	5	10	15	19	24	29	34	39	44	
897	2792	2841	2889	2938	2986	3035	3083	3131	3180	3228	5	10	15	19	24	29	34	39	44	
898	3276	3325	3373	3421	3470	3518	3566	3615	3663	3711	5	10	15	19	24	29	34	39	44	
899	3760	3808	3856	3905	3953	4001	4049	4098	4146	4194	5	10	15	19	24	29	34	39	44	
900	954243	4291	4339	4387	4436	4484	4532	4580	4628	4677	5	10	14	19	24	29	34	38	43	
901	4725	4773	4821	4869	4918	4966	5014	5062	5110	5158	5	10	14	19	24	29	34	38	43	
902	5207	5255	5303	5351	5399	5447	5495	5543	5592	5640	5	10	14	19	24	29	34	38	43	
903	5688	5736	5784	5832	5880	5928	5976	6024	6072	6120	5	10	14	19	24	29	34	38	43	
904	6168	6217	6265	6313	6361	6409	6457	6505	6553	6601	5	10	14	19	24	29	34	38	43	
905	956649	6697	6745	6793	6841	6889	6936	6984	7032	7080	5	10	14	19	24	29	34	38	43	
906	7128	7176	7224	7272	7320	7368	7416	7464	7512	7559	5	10	14	19	24	29	34	38	43	
907	7607	7655	7703	7751	7799	7847	7895	7942	7990	8038	5	10	14	19	24	29	34	38	43	
908	8086	8134	8182	8229	8277	8325	8373	8421	8468	8516	5	10	14	19	24	29	34	38	43	
909	8564	8612	8659	8707	8755	8803	8851	8898	8946	8994	5	10	14	19	24	29	34	38	43	
910	959041	9089	9137	9185	9232	9280	9328	9375	9423	9471	5	10	14	19	24	29	34	38	43	
911	9518	9566	9614	9661	9709	9757	9804	9852	9900	9947	5	10	14	19	24	29	34	38	43	
912	9995	10043	10090	10138	10185	10233	10281	10328	10376	10423	5	10	14	19	24	28	33	38	43	
913	960471	0518	0566	0614	0661	0709	0756	0804	0851	0899	5	10	14	19	24	28	33	38	43	
914	0940	0994	1041	1089	1136	1184	1231	1279	1326	1374	5	10	14	19	24	28	33	38	43	
915	961421	1469	1516	1564	1611	1658	1706	1753	1801	1848	5	10	14	19	24	28	33	38	43	
916	1896	1943	1990	2038	2085	2133	2180	2227	2275	2322	5	10	14	19	24	28	33	38	43	
917	2369	2417	2464	2511	2559	2606	2653	2701	2748	2795	5	9	14	19	24	28	33	38	42	
918	2843	2890	2937	2985	3032	3079	3126	3174	3221	3268	5	9	14	19	24	28	33	38	42	
919	3316	3363	3410	3457	3505	3552	3599	3646	3693	3741	5	9	14	19	24	28	33	38	42	
920	963788	3835	3882	3929	3977	4024	4071	4118	4165	4213	5	9	14	19	24	28	33	38	42	
921	4260	4307	4354	4401	4448	4495	4543	4590	4637	4684	5	9	14	19	24	28	33	38	42	
922	4731	4778	4825	4872	4919	4966	5014	5061	5108	5155	5	9	14	19	24	28	33	38	42	
923	5202	5249	5296	5343	5390	5437	5484	5531	5578	5625	5	9	14	19	24	28	33	38	42	
924	5672	5719	5766	5813	5860	5907	5954	6001	6048	6095	5	9	14	19	24	28	33	38	42	
925	966142	6189	6236	6283	6330	6376	6423	6470	6517	6564	5	9	14	19	24	28	33	38	42	
926	6611	6658	6705	6752	6799	6845	6892	6939	6986	7033	5	9	14	19	24	28	33	38	42	
927	7080	7127	7173	7220	7267	7314	7361	7408	7454	7501	5	9	14	19	24	28	33	38	42	
928	7548	7595	7642	7688	7735	7782	7829	7875	7922	7969	5	9	14	19	23	28	33	38	42	
929	8016	8063	8109	8156	8203	8249	8296	8343	8390	8436	5	9	14	19	23	28	33	38	42	
930	968483	8530	8576	8623	8670	8716	8763	8810	8856	8903	5	9	14	19	23	28	33	37	42	
931	8950	8996	9043	9090	9136	9183	9230	9276	9323	9369	5	9	14	19	23	28	33	37	42	
932	9416	9463	9509	9556	9602	9649	9695	9742	9789	9835	5	9	14	19	23	28	33	37	42	
933	9882	9928	9975	10021	10068	10114	10161	10207	10254	10300	5	9	14	19	23	28	33	37	42	
934	970347	0393	0440	0486	0533	0579	0626	0672	0719	0765	5	9	14	19	23	28	33	37	42	
935	970812	0858	0905	0951	0997	1044	1090	1137	1183	1229	5	9	14	19	23	28	33	37	42	
936	1276	1322	1369	1415	1461	1508	1554	1601	1647	1693	5	9	14	19	23	28	33	37	42	
937	1740	1786	1832	1879	1925	1971	2018	2064	2110	2157	5	9	14	19	23	28	33	37	42	
938	2203	2249	2295	2342	2388	2434	2481	2527	2573	2619	5	9	14	18	23	28	32	37	41	
939	2666	2712	2758	2804	2851	2897	2943	2989	3035	3082	5	9	14	18	23	28	32	37	41	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
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LOGARITHMS OF NUMBERS, FROM 1 TO 99999; PART THE FIRST.

Nat. No.	0 1 2 3 4 5 6 7 8 9										Proportional parts.									
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9		
940	973128	3174	3220	3266	3313	3359	3405	3451	3497	3544	5	9	14	18	23	28	32	37	41	
941	3590	3636	3682	3728	3774	3820	3866	3913	3959	4005	5	9	14	18	23	28	32	37	41	
942	4051	4097	4143	4189	4235	4281	4327	4374	4420	4466	5	9	14	18	23	28	32	37	41	
943	4512	4558	4604	4650	4696	4742	4788	4834	4880	4926	5	9	14	18	23	28	32	37	41	
944	4972	5018	5064	5110	5156	5202	5248	5294	5340	5386	5	9	14	18	23	28	32	37	41	
945	975432	5478	5524	5570	5616	5662	5708	5753	5799	5845	5	9	14	18	23	28	32	37	41	
946	5891	5937	5983	6029	6075	6121	6167	6212	6258	6304	5	9	14	18	23	28	32	37	41	
947	6350	6396	6442	6488	6533	6579	6625	6671	6717	6763	5	9	14	18	23	28	32	37	41	
948	6808	6854	6900	6946	6992	7037	7083	7129	7175	7220	5	9	14	18	23	27	32	37	41	
949	7266	7312	7358	7404	7449	7495	7541	7586	7632	7678	5	9	14	18	23	27	32	37	41	
950	977724	7709	7815	7861	7906	7952	7998	8044	8089	8135	5	9	14	18	23	27	32	37	41	
951	8181	8226	8272	8318	8363	8409	8454	8500	8546	8591	5	9	14	18	23	27	32	37	41	
952	8637	8683	8728	8774	8819	8865	8911	8956	9002	9047	5	9	14	18	23	27	32	36	41	
953	9093	9139	9184	9230	9275	9321	9366	9412	9457	9503	5	9	14	18	23	27	32	36	41	
954	9548	9594	9639	9685	9730	9776	9821	9867	9912	9958	5	9	14	18	23	27	32	36	41	
955	980003	0049	0094	0140	0185	0231	0276	0322	0367	0413	5	9	14	18	23	27	32	36	41	
956	0458	0503	0549	0594	0640	0685	0730	0776	0821	0867	5	9	14	18	23	27	32	36	41	
957	0912	0957	1003	1048	1093	1139	1184	1230	1275	1320	5	9	14	18	23	27	32	36	41	
958	1366	1411	1456	1502	1547	1592	1637	1683	1728	1773	5	9	14	18	23	27	32	36	41	
959	1819	1864	1909	1954	2000	2045	2090	2136	2181	2226	5	9	14	18	23	27	32	36	41	
960	982271	2317	2362	2407	2452	2497	2543	2588	2633	2678	5	9	14	18	23	27	32	36	41	
961	2723	2769	2814	2859	2904	2949	2995	3040	3085	3130	5	9	14	18	23	27	32	36	41	
962	3175	3220	3265	3311	3356	3401	3446	3491	3536	3581	5	9	14	18	23	27	32	36	41	
963	3626	3671	3717	3762	3807	3852	3897	3942	3987	4032	5	9	14	18	23	27	32	36	41	
964	4077	4122	4167	4212	4257	4302	4347	4392	4437	4482	5	9	14	18	23	27	32	36	41	
965	984527	4572	4617	4662	4707	4752	4797	4842	4887	4932	5	9	14	18	23	27	32	36	41	
966	4977	5022	5067	5112	5157	5202	5247	5292	5337	5382	5	9	14	18	23	27	32	36	41	
967	5427	5471	5516	5561	5606	5651	5696	5741	5786	5831	4	9	13	18	22	27	31	36	40	
968	5875	5920	5965	6010	6055	6100	6145	6189	6234	6279	4	9	13	18	22	27	31	36	40	
969	6324	6369	6413	6458	6503	6548	6593	6637	6682	6727	4	9	13	18	22	27	31	36	40	
970	986772	6817	6861	6906	6951	6996	7040	7085	7130	7175	4	9	13	18	22	27	31	36	40	
971	7219	7264	7309	7353	7398	7443	7488	7532	7577	7622	4	9	13	18	22	27	31	36	40	
972	7666	7711	7756	7800	7845	7890	7934	7979	8024	8068	4	9	13	18	22	27	31	36	40	
973	8113	8158	8202	8247	8291	8336	8381	8425	8470	8514	4	9	13	18	22	27	31	36	40	
974	8559	8604	8648	8693	8737	8782	8826	8871	8916	8960	4	9	13	18	22	27	31	36	40	
975	989005	9049	9094	9138	9183	9227	9272	9316	9361	9405	4	9	13	18	22	27	31	36	40	
976	9450	9494	9539	9583	9628	9672	9717	9761	9806	9850	4	9	13	18	22	27	31	36	40	
977	9895	9939	9984	0028	0072	0117	0161	0206	0250	0294	4	9	13	18	22	27	31	36	40	
978	999339	0383	0428	0472	0516	0561	0605	0650	0694	0738	4	9	13	18	22	27	31	36	40	
979	0783	0827	0871	0916	0960	1004	1049	1093	1137	1182	4	9	13	18	22	27	31	36	40	
980	991226	1270	1315	1359	1403	1448	1492	1536	1581	1625	4	9	13	18	22	27	31	36	40	
981	1669	1713	1758	1802	1846	1890	1935	1979	2023	2067	4	9	13	18	22	27	31	36	40	
982	2112	2156	2200	2244	2288	2333	2377	2421	2465	2509	4	9	13	18	22	26	31	35	40	
983	2554	2598	2642	2686	2730	2774	2819	2863	2907	2951	4	9	13	18	22	26	31	35	40	
984	2995	3039	3083	3128	3172	3216	3260	3304	3348	3392	4	9	13	18	22	26	31	35	40	
985	993436	3480	3524	3569	3613	3657	3701	3745	3789	3833	4	9	13	18	22	26	31	35	40	
986	3877	3921	3965	4009	4053	4097	4141	4185	4229	4273	4	9	13	18	22	26	31	35	40	
987	4317	4361	4405	4449	4493	4537	4581	4625	4669	4713	4	9	13	18	22	26	31	35	40	
988	4757	4801	4845	4889	4933	4977	5021	5065	5109	5153	4	9	13	18	22	26	31	35	40	
989	5196	5240	5284	5328	5372	5416	5460	5504	5547	5591	4	9	13	18	22	26	31	35	40	
990	995635	5679	5723	5767	5811	5855	5898	5942	5986	6030	4	9	13	18	22	26	31	35	40	
991	6074	6118	6161	6205	6249	6293	6337	6380	6424	6468	4	9	13	18	22	26	31	35	40	
992	6512	6555	6599	6643	6687	6731	6774	6818	6862	6906	4	9	13	18	22	26	31	35	40	
993	6949	6993	7037	7080	7124	7168	7212	7255	7299	7343	4	9	13	18	22	26	31	35	39	
994	7386	7430	7474	7517	7561	7605	7648	7692	7736	7779	4	9	13	17	22	26	30	35	39	
995	997823	7867	7910	7954	7998	8041	8085	8129	8172	8216	4	9	13	17	22	26	30	35	39	
996	8259	8303	8347	8390	8434	8477	8521	8565	8608	8652	4	9	13	17	22	26	30	35	39	
997	8695	8739	8782	8826	8869	8913	8956	9000	9044	9087	4	9	13	17	22	26	30	35	39	
998	9131	9174	9218	9261	9305	9348	9392	9435	9479	9522	4	9	13	17	22	26	30	35	39	
999	9566	9609	9652	9696	9739	9783	9826	9870	9913	9957	4	9	13	17	22	26	30	35	39	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts.									
1	2	3	4	5	6	7	8	9												

ARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

0	1	2	3	4	5	6	7	8	9	Proportional parts.								
										1	2	3	4	5	6	7	8	9
000000	0043	0087	0130	0174	0217	0260	0304	0347	0391	4	9	13	17	22	26	30	35	39
0434	0477	0521	0564	0608	0651	0694	0738	0781	0824	4	9	13	17	22	26	30	35	39
0868	0911	0954	0998	1041	1084	1128	1171	1214	1258	4	9	13	17	22	26	30	35	39
1301	1344	1387	1431	1474	1517	1561	1604	1647	1690	4	9	13	17	22	26	30	35	39
1734	1777	1820	1864	1907	1950	1993	2036	2080	2123	4	9	13	17	22	26	30	35	39
002166	2209	2252	2296	2339	2382	2425	2468	2512	2555	4	9	13	17	22	26	30	35	39
2598	2641	2684	2727	2771	2814	2857	2900	2943	2986	4	9	13	17	21	26	30	34	39
3029	3073	3116	3159	3202	3245	3288	3331	3374	3417	4	9	13	17	21	26	30	34	39
3460	3504	3547	3590	3633	3676	3719	3762	3805	3848	4	9	13	17	21	26	30	34	39
3891	3934	3977	4020	4063	4106	4149	4192	4235	4278	4	9	13	17	21	26	30	34	39
004321	4364	4407	4450	4493	4536	4579	4622	4665	4708	4	9	13	17	21	26	30	34	39
4751	4794	4837	4880	4923	4966	5009	5052	5095	5138	4	9	13	17	21	26	30	34	39
5180	5223	5266	5309	5352	5395	5438	5481	5524	5567	4	9	13	17	21	26	30	34	39
5609	5652	5695	5738	5781	5824	5867	5909	5952	5995	4	9	13	17	21	26	30	34	39
6038	6081	6124	6166	6209	6252	6295	6338	6380	6423	4	9	13	17	21	26	30	34	39
006466	6509	6552	6594	6637	6680	6723	6765	6808	6851	4	9	13	17	21	26	30	34	38
6894	6937	6979	7022	7065	7107	7150	7193	7235	7278	4	9	13	17	21	26	30	34	38
7321	7364	7406	7449	7492	7534	7577	7620	7662	7705	4	9	13	17	21	26	30	34	38
7748	7790	7833	7876	7918	7961	8004	8046	8089	8132	4	9	13	17	21	26	30	34	38
8174	8217	8259	8302	8345	8387	8430	8472	8515	8558	4	9	13	17	21	26	30	34	38
008600	8643	8685	8728	8770	8813	8856	8898	8941	8983	4	8	13	17	21	25	30	34	38
9026	9068	9111	9153	9196	9238	9281	9323	9366	9408	4	8	13	17	21	25	30	34	38
9451	9493	9536	9578	9621	9663	9706	9748	9791	9833	4	8	13	17	21	25	30	34	38
9876	9918	9960	0003	0045	0088	0130	0173	0215	0257	4	8	13	17	21	25	30	34	38
010300	0342	0385	0427	0470	0512	0554	0597	0639	0681	4	8	13	17	21	25	30	34	38
010724	0766	0809	0851	0893	0936	0978	1020	1063	1105	4	8	13	17	21	25	30	34	38
1147	1190	1232	1274	1317	1359	1401	1444	1486	1528	4	8	13	17	21	25	30	34	38
1570	1613	1655	1697	1740	1782	1824	1866	1909	1951	4	8	13	17	21	25	30	34	38
1993	2035	2078	2120	2162	2204	2246	2289	2331	2373	4	8	13	17	21	25	30	34	38
2415	2458	2500	2542	2584	2626	2668	2711	2753	2795	4	8	13	17	21	25	30	34	38
012837	2879	2921	2964	3006	3048	3090	3132	3174	3216	4	8	13	17	21	25	29	34	38
3259	3301	3343	3385	3427	3469	3511	3553	3595	3638	4	8	13	17	21	25	29	34	38
3680	3722	3764	3806	3848	3890	3932	3974	4016	4058	4	8	13	17	21	25	29	34	38
4100	4142	4184	4226	4268	4310	4352	4394	4436	4478	4	8	13	17	21	25	29	34	38
4520	4562	4604	4646	4688	4730	4772	4814	4856	4898	4	8	13	17	21	25	29	34	38
014940	4982	5024	5066	5108	5150	5192	5234	5276	5318	4	8	13	17	21	25	29	33	38
5360	5403	5444	5485	5527	5569	5611	5653	5695	5737	4	8	13	17	21	25	29	33	38
5779	5821	5862	5904	5946	5988	6030	6072	6114	6155	4	8	13	17	21	25	29	33	38
6197	6239	6281	6323	6365	6406	6448	6490	6532	6574	4	8	13	17	21	25	29	33	38
6615	6657	6699	6741	6783	6824	6866	6908	6950	6992	4	8	13	17	21	25	29	33	38
017033	7075	7117	7159	7200	7242	7284	7326	7367	7409	4	8	12	17	21	25	29	33	37
7451	7492	7534	7576	7618	7659	7701	7743	7784	7826	4	8	12	17	21	25	29	33	37
7868	7909	7951	7993	8034	8076	8118	8159	8201	8243	4	8	12	17	21	25	29	33	37
8284	8326	8368	8409	8451	8492	8534	8576	8617	8659	4	8	12	17	21	25	29	33	37
8700	8742	8784	8825	8867	8908	8950	8992	9033	9075	4	8	12	17	21	25	29	33	37
019116	9158	9199	9241	9282	9324	9366	9407	9449	9490	4	8	12	17	21	25	29	33	37
9532	9573	9615	9656	9698	9739	9781	9822	9864	9905	4	8	12	17	21	25	29	33	37
9947	9988	0030	0071	0113	0154	0195	0237	0278	0320	4	8	12	17	21	25	29	33	37
020361	0403	0444	0486	0527	0568	0610	0651	0693	0734	4	8	12	17	21	25	29	33	37
0775	0817	0858	0900	0941	0982	1024	1065	1107	1148	4	8	12	17	21	25	29	33	37
021189	1231	1272	1313	1355	1396	1437	1479	1520	1561	4	8	12	16	21	25	29	33	37
1603	1644	1685	1727	1768	1809	1851	1892	1933	1974	4	8	12	16	21	25	29	33	37
2016	2057	2098	2140	2181	2222	2263	2305	2346	2387	4	8	12	16	21	25	29	33	37
2428	2470	2511	2552	2593	2634	2676	2717	2758	2799	4	8	12	16	21	25	29	33	37
2841	2882	2923	2964	3005	3047	3088	3129	3170	3211	4	8	12	16	21	25	29	33	37
023252	3294	3335	3376	3417	3458	3499	3540	3582	3623	4	8	12	16	20	25	29	33	37
3664	3705	3746	3787	3828	3869	3911	3952	3993	4034	4	8	12	16	20	25	29	33	37
4075	4116	4157	4198	4239	4280	4321	4362	4404	4445	4	8	12	16	20	25	29	33	37
4486	4527	4568	4609	4650	4691	4732	4773	4814	4855	4	8	12	16	20	25	29	33	37
4896	4937	4978	5019	5060	5101	5142	5183	5224	5265	4	8	12	16	20	25	29	33	37
0	1	2	3	4	5	6	7	8	9	Proportional parts.								
										1	2	3	4	5	6	7	8	9

etc.—This part of the Table will be found particularly useful in computing the lunar
 rations by methods III. IV. V. in Vol. 1. pages 438, 439, 441 when the apparent distance
 is 90 degrees.

LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.											Proportional Parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
1060	025306	5347	5388	5429	5470	5511	5552	5593	5633	5674	4	8	12	16	20	24	29	33	37	
1061	5715	5756	5797	5838	5879	5920	5961	6002	6043	6084	4	8	12	16	20	24	29	33	37	
1062	6124	6165	6206	6247	6288	6329	6370	6411	6451	6492	4	8	12	16	20	24	29	33	37	
1063	6533	6574	6615	6656	6697	6737	6778	6819	6860	6901	4	8	12	16	20	24	29	33	37	
1064	6942	6982	7023	7064	7105	7146	7186	7227	7268	7309	4	8	12	16	20	24	29	33	37	
1065	027350	7390	7431	7472	7513	7553	7594	7635	7676	7716	4	8	12	16	20	24	28	32	37	
1066	7757	7798	7839	7879	7920	7961	8002	8043	8083	8124	4	8	12	16	20	24	28	32	37	
1067	8164	8205	8246	8286	8327	8368	8409	8449	8490	8531	4	8	12	16	20	24	28	32	37	
1068	8571	8612	8653	8693	8734	8774	8815	8856	8896	8937	4	8	12	16	20	24	28	32	37	
1069	8978	9018	9059	9100	9140	9181	9221	9262	9303	9343	4	8	12	16	20	24	28	32	37	
1070	029384	9424	9465	9505	9546	9587	9627	9668	9708	9749	4	8	12	16	20	24	28	32	36	
1071	9789	9830	9871	9911	9952	9992	0033	0073	0114	0154	4	8	12	16	20	24	28	32	36	
1072	030195	0235	0276	0316	0357	0397	0438	0478	0519	0559	4	8	12	16	20	24	28	32	36	
1073	0600	0640	0681	0721	0762	0802	0842	0883	0923	0964	4	8	12	16	20	24	28	32	36	
1074	1004	1045	1085	1126	1166	1206	1247	1287	1328	1368	4	8	12	16	20	24	28	32	36	
1075	031408	1449	1489	1530	1570	1610	1651	1691	1731	1772	4	8	12	16	20	24	28	32	36	
1076	1812	1853	1893	1933	1974	2014	2054	2095	2135	2175	4	8	12	16	20	24	28	32	36	
1077	2216	2256	2296	2337	2377	2417	2458	2498	2538	2578	4	8	12	16	20	24	28	32	36	
1078	2619	2659	2699	2740	2780	2820	2860	2901	2941	2981	4	8	12	16	20	24	28	32	36	
1079	3021	3062	3102	3142	3182	3223	3263	3303	3343	3383	4	8	12	16	20	24	28	32	36	
1080	033424	3464	3504	3544	3585	3625	3665	3705	3745	3785	4	8	12	16	20	24	28	32	36	
1081	3826	3866	3906	3946	3986	4026	4067	4107	4147	4187	4	8	12	16	20	24	28	32	36	
1082	4227	4267	4307	4348	4388	4428	4468	4508	4548	4588	4	8	12	16	20	24	28	32	36	
1083	4628	4669	4709	4749	4789	4829	4869	4909	4949	4989	4	8	12	16	20	24	28	32	36	
1084	5029	5069	5109	5149	5189	5230	5270	5310	5350	5390	4	8	12	16	20	24	28	32	36	
1085	035430	5470	5510	5550	5590	5630	5670	5710	5750	5790	4	8	12	16	20	24	28	32	36	
1086	5830	5870	5910	5950	5990	6030	6070	6110	6150	6190	4	8	12	16	20	24	28	32	36	
1087	6229	6269	6309	6349	6389	6429	6469	6509	6549	6589	4	8	12	16	20	24	28	32	36	
1088	6629	6669	6709	6749	6789	6828	6868	6908	6948	6988	4	8	12	16	20	24	28	32	36	
1089	7028	7068	7108	7147	7187	7227	7267	7307	7347	7387	4	8	12	16	20	24	28	32	36	
1090	037436	7466	7506	7546	7586	7626	7665	7705	7745	7785	4	8	12	16	20	24	28	32	36	
1091	7825	7865	7904	7944	7984	8024	8063	8103	8143	8183	4	8	12	16	20	24	28	32	36	
1092	8223	8263	8302	8342	8382	8421	8461	8501	8541	8580	4	8	12	16	20	24	28	32	36	
1093	8620	8660	8700	8739	8779	8819	8858	8898	8938	8978	4	8	12	16	20	24	28	32	36	
1094	9017	9057	9097	9136	9176	9215	9255	9295	9335	9374	4	8	12	16	20	24	28	32	36	
1095	039444	9454	9493	9533	9573	9612	9652	9692	9731	9771	4	8	12	16	20	24	28	32	36	
1096	9811	9850	9890	9929	9969	0009	0048	0088	0127	0167	4	8	12	16	20	24	28	32	36	
1097	040207	0246	0286	0325	0365	0404	0444	0484	0523	0563	4	8	12	16	20	24	28	32	36	
1098	0602	0642	0681	0721	0760	0800	0840	0879	0919	0958	4	8	12	16	20	24	28	32	36	
1099	0998	1037	1077	1116	1156	1195	1235	1274	1314	1353	4	8	12	16	20	24	28	32	36	
1100	041393	1432	1472	1511	1551	1590	1629	1669	1708	1748	4	8	12	16	20	24	27	31	35	
1101	1787	1827	1866	1906	1945	1984	2024	2063	2103	2142	4	8	12	16	20	24	27	31	35	
1102	2182	2221	2260	2300	2339	2379	2418	2457	2497	2536	4	8	12	16	20	24	27	31	35	
1103	2575	2615	2654	2694	2733	2772	2812	2851	2890	2930	4	8	12	16	20	24	27	31	35	
1104	2969	3008	3048	3087	3126	3166	3205	3244	3284	3323	4	8	12	16	20	24	27	31	35	
1105	043363	3402	3441	3480	3519	3559	3598	3637	3677	3716	4	8	12	16	20	24	27	31	35	
1106	3755	3794	3834	3873	3912	3951	3991	4030	4069	4108	4	8	12	16	20	24	27	31	35	
1107	4148	4187	4226	4265	4304	4344	4383	4422	4461	4501	4	8	12	16	20	24	27	31	35	
1108	4540	4579	4618	4657	4696	4736	4775	4814	4853	4892	4	8	12	16	20	24	27	31	35	
1109	4931	4971	5010	5049	5088	5127	5166	5206	5245	5284	4	8	12	16	20	24	27	31	35	
1110	045333	5362	5401	5440	5479	5519	5558	5597	5636	5675	4	8	12	16	20	23	27	31	35	
1111	5714	5753	5792	5831	5870	5909	5948	5988	6027	6066	4	8	12	16	20	23	27	31	35	
1112	6105	6144	6183	6222	6261	6300	6339	6378	6417	6456	4	8	12	16	20	23	27	31	35	
1113	6495	6534	6573	6612	6651	6690	6729	6768	6807	6846	4	8	12	16	20	23	27	31	35	
1114	6885	6924	6963	7002	7041	7080	7119	7158	7197	7236	4	8	12	16	20	23	27	31	35	
1115	047275	7314	7353	7392	7431	7470	7508	7547	7586	7625	4	8	12	16	19	23	27	31	35	
1116	7664	7703	7742	7781	7820	7859	7898	7936	7975	8014	4	8	12	16	19	23	27	31	35	
1117	8053	8092	8131	8170	8209	8247	8286	8325	8364	8403	4	8	12	16	19	23	27	31	35	
1118	8442	8481	8519	8558	8597	8636	8675	8714	8752	8791	4	8	12	16	19	23	27	31	35	
1119	8830	8869	8908	8946	8985	9024	9063	9102	9140	9179	4	8	12	16	19	23	27	31	35	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
										1	2	3	4	5	6	7	8	9		

ARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

0	1	2	3	4	5	6	7	8	9	Proportional Parts.								
										1	2	3	4	5	6	7	8	9
1218	9257	9206	9334	9373	9412	9451	9489	9528	9567	4	8	12	15	19	23	27	31	35
1606	9644	9683	9722	9761	9799	9838	9877	9915	9954	4	8	12	15	19	23	27	31	35
1993	9932	9970	1009	1048	1086	1125	1164	1202	1241	4	8	12	15	19	23	27	31	35
2380	0418	0457	0496	0534	0573	0612	0650	0689	0728	4	8	12	15	19	23	27	31	35
2766	0805	0844	0882	0921	0959	0998	1037	1075	1114	4	8	12	15	19	23	27	31	35
1152	1191	1230	1268	1307	1345	1384	1423	1461	1500	4	8	12	15	19	23	27	31	35
1538	1577	1615	1654	1693	1731	1770	1808	1847	1885	4	8	12	15	19	23	27	31	35
1924	1962	2001	2039	2078	2117	2155	2194	2232	2271	4	8	12	15	19	23	27	31	35
2309	2348	2386	2425	2463	2502	2540	2578	2617	2655	4	8	12	15	19	23	27	31	35
2694	2732	2771	2809	2848	2886	2925	2963	3002	3040	4	8	12	15	19	23	27	31	35
3078	3117	3155	3194	3232	3271	3309	3347	3386	3424	4	8	11	15	19	23	27	31	34
3463	3501	3539	3578	3616	3655	3693	3731	3770	3808	4	8	11	15	19	23	27	31	34
3846	3885	3923	3961	4000	4038	4077	4115	4153	4192	4	8	11	15	19	23	27	31	34
4230	4268	4307	4345	4383	4421	4460	4498	4536	4575	4	8	11	15	19	23	27	31	34
4613	4651	4690	4728	4766	4804	4843	4881	4919	4958	4	8	11	15	19	23	27	31	34
4996	5034	5072	5111	5149	5187	5225	5264	5302	5340	4	8	11	15	19	23	27	31	34
5378	5417	5455	5493	5531	5569	5608	5646	5684	5722	4	8	11	15	19	23	27	31	34
5760	5799	5837	5875	5913	5951	5990	6028	6066	6104	4	8	11	15	19	23	27	31	34
6142	6180	6219	6257	6295	6333	6371	6409	6447	6486	4	8	11	15	19	23	27	31	34
6524	6562	6600	6638	6676	6714	6752	6790	6829	6867	4	8	11	15	19	23	27	31	34
6905	6943	6981	7019	7057	7095	7133	7171	7209	7248	4	8	11	15	19	23	27	30	34
7286	7324	7362	7400	7438	7476	7514	7552	7590	7628	4	8	11	15	19	23	27	30	34
7666	7704	7742	7780	7818	7856	7894	7932	7970	8008	4	8	11	15	19	23	27	30	34
8046	8084	8122	8160	8198	8236	8274	8312	8350	8388	4	8	11	15	19	23	27	30	34
8426	8464	8502	8540	8578	8616	8654	8692	8730	8768	4	8	11	15	19	23	27	30	34
8805	8843	8881	8919	8957	8995	9033	9071	9109	9147	4	8	11	15	19	23	26	30	34
9185	9223	9260	9298	9336	9374	9412	9450	9488	9526	4	8	11	15	19	23	26	30	34
9563	9601	9639	9677	9715	9753	9790	9828	9866	9904	4	8	11	15	19	23	26	30	34
9942	9980	0017	0055	0093	0131	0169	0207	0244	0282	4	8	11	15	19	23	26	30	34
0320	0358	0396	0433	0471	0509	0547	0584	0622	0660	4	8	11	15	19	23	26	30	34
0698	0736	0773	0811	0849	0887	0924	0962	1000	1038	4	8	11	15	19	23	26	30	34
1075	1113	1151	1188	1226	1264	1302	1339	1377	1415	4	8	11	15	19	23	26	30	34
1452	1490	1528	1566	1603	1641	1679	1716	1754	1792	4	8	11	15	19	23	26	30	34
1829	1867	1905	1942	1980	2018	2055	2093	2130	2168	4	8	11	15	19	23	26	30	34
2206	2243	2281	2319	2356	2394	2432	2469	2507	2544	4	8	11	15	19	23	26	30	34
2582	2620	2657	2695	2732	2770	2807	2845	2883	2920	4	7	11	15	19	23	26	30	34
2958	2995	3033	3070	3108	3146	3183	3221	3258	3296	4	7	11	15	19	23	26	30	34
3333	3371	3408	3446	3483	3521	3558	3596	3633	3671	4	7	11	15	19	23	26	30	34
3709	3746	3784	3821	3858	3896	3933	3971	4008	4046	4	7	11	15	19	23	26	30	34
4083	4121	4158	4196	4233	4271	4308	4346	4383	4420	4	7	11	15	19	23	26	30	34
4458	4495	4533	4570	4608	4645	4683	4720	4757	4795	4	7	11	15	19	22	26	30	34
4832	4870	4907	4944	4982	5019	5057	5094	5131	5169	4	7	11	15	19	22	26	30	34
5206	5243	5281	5318	5355	5393	5430	5468	5505	5542	4	7	11	15	19	22	26	30	34
5580	5617	5654	5692	5729	5766	5804	5841	5878	5916	4	7	11	15	19	22	26	30	34
5953	5990	6028	6065	6102	6139	6177	6214	6251	6289	4	7	11	15	19	22	26	30	34
6326	6363	6400	6438	6475	6512	6549	6587	6624	6661	4	7	11	15	19	22	26	30	33
6699	6736	6773	6810	6847	6885	6922	6959	6996	7034	4	7	11	15	19	22	26	30	33
7071	7108	7145	7182	7220	7257	7294	7331	7368	7406	4	7	11	15	19	22	26	30	33
7443	7480	7517	7554	7591	7629	7666	7703	7740	7777	4	7	11	15	19	22	26	30	33
7814	7852	7889	7926	7963	8000	8037	8074	8112	8149	4	7	11	15	19	22	26	30	33
8186	8223	8260	8297	8334	8371	8408	8446	8483	8520	4	7	11	15	19	22	26	30	33
8557	8594	8631	8668	8705	8742	8779	8816	8853	8891	4	7	11	15	19	22	26	30	33
8928	8965	9002	9039	9076	9113	9150	9187	9224	9261	4	7	11	15	19	22	26	30	33
9298	9335	9372	9409	9446	9483	9520	9557	9594	9631	4	7	11	15	19	22	26	30	33
9668	9705	9742	9779	9816	9853	9890	9927	9964	0001	4	7	11	15	19	22	26	30	33
0038	0075	0112	0149	0186	0223	0260	0296	0333	0370	4	7	11	15	18	22	26	29	33
0407	0444	0481	0518	0555	0592	0629	0666	0703	0740	4	7	11	15	18	22	26	29	33
0776	0813	0850	0887	0924	0961	0998	1035	1071	1108	4	7	11	15	18	22	26	29	33
1145	1182	1219	1256	1293	1330	1366	1403	1440	1477	4	7	11	15	18	22	26	29	33
1514	1551	1587	1624	1661	1698	1735	1772	1808	1845	4	7	11	15	18	22	26	29	33

LOGARITHMS OF NUMBERS from 1000000 to 1839999; *Part the Second.*

Nat. No.											Proportional parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
1180	071882	1919	1956	1992	2029	2066	2103	2140	2176	2213	4	7	11	15	18	22	26	29	33	
1181	2250	2287	2323	2360	2397	2434	2470	2507	2544	2581	4	7	11	15	18	22	26	29	33	
1182	2617	2654	2691	2728	2764	2801	2838	2875	2911	2948	4	7	11	15	18	22	26	29	33	
1183	2985	3021	3058	3095	3132	3168	3205	3242	3278	3315	4	7	11	15	18	22	26	29	33	
1184	3352	3388	3425	3462	3498	3535	3572	3608	3645	3682	4	7	11	15	18	22	26	29	33	
1185	073718	3755	3792	3828	3865	3902	3938	3975	4011	4048	4	7	11	15	18	22	26	29	33	
1186	4085	4121	4158	4194	4231	4268	4304	4341	4377	4414	4	7	11	15	18	22	26	29	33	
1187	4451	4487	4524	4560	4597	4634	4670	4707	4743	4780	4	7	11	15	18	22	26	29	33	
1188	4816	4853	4889	4926	4963	4999	5036	5072	5109	5145	4	7	11	15	18	22	26	29	33	
1189	5182	5218	5255	5291	5328	5364	5401	5437	5474	5510	4	7	11	15	18	22	26	29	33	
1190	075547	5583	5620	5656	5693	5729	5766	5802	5839	5875	4	7	11	15	18	22	25	29	33	
1191	5912	5948	5985	6021	6058	6094	6130	6167	6203	6240	4	7	11	15	18	22	25	29	33	
1192	6276	6313	6349	6385	6422	6458	6495	6531	6568	6604	4	7	11	15	18	22	25	29	33	
1193	6640	6677	6713	6750	6786	6822	6859	6895	6932	6968	4	7	11	15	18	22	25	29	33	
1194	7004	7041	7077	7113	7150	7186	7222	7259	7295	7332	4	7	11	15	18	22	25	29	33	
1195	077368	7404	7441	7477	7513	7550	7586	7622	7658	7695	4	7	11	14	18	22	25	29	33	
1196	7731	7767	7804	7840	7876	7913	7949	7985	8022	8058	4	7	11	14	18	22	25	29	33	
1197	8094	8130	8167	8203	8239	8275	8312	8348	8384	8421	4	7	11	14	18	22	25	29	33	
1198	8457	8493	8529	8566	8602	8638	8674	8710	8747	8783	4	7	11	14	18	22	25	29	33	
1199	8819	8855	8892	8928	8964	9000	9036	9073	9109	9145	4	7	11	14	18	22	25	29	33	
1200	079181	9217	9254	9290	9326	9362	9398	9434	9471	9507	4	7	11	14	18	22	25	29	33	
1201	9543	9579	9615	9651	9688	9724	9760	9796	9832	9868	4	7	11	14	18	22	25	29	33	
1202	9904	9941	9977	●●13	●●49	●●85	●●121	●●157	●●193	●●229	4	7	11	14	18	22	25	29	33	
1203	080266	0302	0338	0374	0410	0446	0482	0518	0554	0590	4	7	11	14	18	22	25	29	33	
1204	0626	0663	0699	0735	0771	0807	0843	0879	0915	0951	4	7	11	14	18	22	25	29	33	
1205	080987	1023	1059	1095	1131	1167	1203	1239	1275	1311	4	7	11	14	18	22	25	29	33	
1206	1347	1383	1419	1455	1491	1527	1563	1599	1635	1671	4	7	11	14	18	22	25	29	33	
1207	1707	1743	1779	1815	1851	1887	1923	1959	1995	2031	4	7	11	14	18	22	25	29	33	
1208	2067	2103	2139	2175	2211	2247	2283	2318	2354	2390	4	7	11	14	18	22	25	29	33	
1209	2426	2462	2498	2534	2570	2606	2642	2678	2714	2749	4	7	11	14	18	22	25	29	33	
1210	082785	2821	2857	2893	2929	2965	3001	3036	3072	3108	4	7	11	14	18	22	25	29	33	
1211	3144	3180	3216	3252	3288	3323	3359	3395	3431	3467	4	7	11	14	18	22	25	29	33	
1212	3503	3538	3574	3610	3646	3682	3718	3753	3789	3825	4	7	11	14	18	22	25	29	33	
1213	3861	3897	3933	3968	4004	4040	4076	4111	4147	4183	4	7	11	14	18	21	25	29	33	
1214	4219	4254	4290	4326	4362	4397	4433	4469	4505	4540	4	7	11	14	18	21	25	29	33	
1215	084576	4612	4648	4683	4719	4755	4791	4826	4862	4898	4	7	11	14	18	21	25	29	33	
1216	4934	4969	5005	5041	5076	5112	5148	5183	5219	5255	4	7	11	14	18	21	25	29	33	
1217	5291	5326	5362	5398	5433	5469	5505	5540	5576	5612	4	7	11	14	18	21	25	29	33	
1218	5647	5683	5719	5754	5790	5825	5861	5897	5932	5968	4	7	11	14	18	21	25	29	33	
1219	6004	6039	6075	6111	6146	6182	6217	6253	6289	6324	4	7	11	14	18	21	25	29	33	
1220	086360	6395	6431	6467	6502	6538	6573	6609	6644	6680	4	7	11	14	18	21	25	28	32	
1221	6716	6751	6787	6822	6858	6893	6929	6965	7000	7036	4	7	11	14	18	21	25	28	32	
1222	7071	7107	7142	7178	7213	7249	7284	7320	7355	7391	4	7	11	14	18	21	25	28	32	
1223	7426	7462	7497	7533	7568	7604	7639	7675	7710	7746	4	7	11	14	18	21	25	28	32	
1224	7781	7817	7852	7888	7923	7959	7994	8030	8065	8101	4	7	11	14	18	21	25	28	32	
1225	088136	8171	8207	8242	8278	8313	8349	8384	8420	8455	4	7	11	14	18	21	25	28	32	
1226	8490	8526	8561	8597	8632	8668	8703	8738	8774	8809	4	7	11	14	18	21	25	28	32	
1227	8845	8880	8915	8951	8986	9021	9057	9092	9128	9163	4	7	11	14	18	21	25	28	32	
1228	9198	9234	9269	9304	9340	9375	9410	9446	9481	9516	4	7	11	14	18	21	25	28	32	
1229	9552	9587	9623	9658	9693	9728	9764	9799	9834	9870	4	7	11	14	18	21	25	28	32	
1230	089905	9940	9976	●●11	●●46	●●82	●●117	●●152	●●187	●●223	4	7	11	14	18	21	25	28	32	
1231	090258	0293	0329	0364	0399	0434	0470	0505	0540	0575	4	7	11	14	18	21	25	28	32	
1232	0611	0646	0681	0716	0752	0787	0822	0857	0893	0928	4	7	11	14	18	21	25	28	32	
1233	0963	0998	1033	1069	1104	1139	1174	1210	1245	1280	4	7	11	14	18	21	25	28	32	
1234	1315	1350	1385	1421	1456	1491	1526	1561	1597	1632	4	7	11	14	18	21	25	28	32	
1235	091667	1702	1737	1772	1808	1843	1878	1913	1948	1983	4	7	11	14	18	21	25	28	32	
1236	2018	2054	2089	2124	2159	2194	2229	2264	2299	2335	4	7	11	14	18	21	25	28	32	
1237	2370	2405	2440	2475	2510	2545	2580	2615	2650	2686	4	7	11	14	18	21	25	28	32	
1238	2721	2756	2791	2826	2861	2896	2931	2966	3001	3036	4	7	11	14	18	21	25	28	32	
1239	3071	3106	3141	3176	3211	3246	3282	3317	3352	3387	4	7	11	14	18	21	25	28	32	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts.									
										1	2	3	4	5	6	7	8	9		

ARITHMS OF NUMBERS from 1000000 to 1839999; Part the Second.

	0	1	2	3	4	5	6	7	8	9	Proportional parts.								
											1	2	3	4	5	6	7	8	9
093422	3457	3493	3527	3562	3597	3632	3667	3702	3737	3	7	10	14	17	21	24	28	31	
3772	3807	3842	3877	3912	3947	3982	4017	4052	4087	3	7	10	14	17	21	24	28	31	
4122	4157	4191	4226	4261	4296	4331	4366	4401	4436	3	7	10	14	17	21	24	28	31	
4471	4506	4541	4576	4611	4646	4681	4716	4751	4785	3	7	10	14	17	21	24	28	31	
4820	4855	4890	4925	4960	4995	5030	5065	5100	5134	3	7	10	14	17	21	24	28	31	
095160	5204	5239	5274	5309	5344	5379	5413	5448	5483	3	7	10	14	17	21	24	28	31	
5518	5553	5588	5623	5657	5692	5727	5762	5797	5832	3	7	10	14	17	21	24	28	31	
5866	5901	5936	5971	6006	6041	6075	6110	6145	6180	3	7	10	14	17	21	24	28	31	
6215	6249	6284	6319	6354	6388	6423	6458	6493	6528	3	7	10	14	17	21	24	28	31	
6562	6597	6632	6667	6701	6736	6771	6806	6840	6875	3	7	10	14	17	21	24	28	31	
096910	6945	6979	7014	7049	7084	7118	7153	7188	7223	3	7	10	14	17	21	24	28	31	
7257	7292	7327	7361	7396	7431	7466	7500	7535	7570	3	7	10	14	17	21	24	28	31	
7604	7639	7674	7708	7743	7778	7812	7847	7882	7916	3	7	10	14	17	21	24	28	31	
7951	7986	8020	8055	8090	8124	8159	8194	8228	8263	3	7	10	14	17	21	24	28	31	
8297	8332	8367	8401	8436	8471	8505	8540	8574	8609	3	7	10	14	17	21	24	28	31	
098644	8678	8713	8747	8782	8817	8851	8886	8920	8955	3	7	10	14	17	21	24	28	31	
8990	9024	9059	9093	9128	9162	9197	9232	9266	9301	3	7	10	14	17	21	24	28	31	
9335	9370	9404	9439	9473	9508	9542	9577	9612	9646	3	7	10	14	17	21	24	28	31	
9681	9715	9750	9784	9819	9853	9888	9922	9957	9991	3	7	10	14	17	21	24	28	31	
100026	0060	0095	0129	0164	0198	0233	0267	0302	0336	3	7	10	14	17	21	24	28	31	
100370	0405	0439	0474	0508	0543	0577	0612	0646	0681	3	7	10	14	17	21	24	27	31	
0715	0749	0784	0818	0853	0887	0922	0956	0990	1025	3	7	10	14	17	21	24	27	31	
1059	1094	1128	1163	1197	1231	1266	1300	1335	1369	3	7	10	14	17	21	24	27	31	
1403	1438	1472	1506	1541	1575	1610	1644	1678	1713	3	7	10	14	17	21	24	27	31	
1747	1781	1816	1850	1884	1919	1953	1987	2022	2056	3	7	10	14	17	21	24	27	31	
102090	2125	2159	2193	2228	2262	2296	2331	2365	2399	3	7	10	14	17	21	24	27	31	
2434	2468	2502	2537	2571	2605	2639	2674	2708	2742	3	7	10	14	17	21	24	27	31	
2777	2811	2845	2879	2914	2948	2982	3016	3051	3085	3	7	10	14	17	21	24	27	31	
3110	3153	3188	3222	3256	3290	3325	3359	3393	3427	3	7	10	14	17	21	24	27	31	
3462	3496	3530	3564	3598	3633	3667	3701	3735	3769	3	7	10	14	17	21	24	27	31	
103804	3838	3872	3906	3940	3975	4009	4043	4077	4111	3	7	10	14	17	20	24	27	31	
4146	4180	4214	4248	4282	4316	4350	4385	4419	4453	3	7	10	14	17	20	24	27	31	
4487	4521	4555	4589	4624	4658	4692	4726	4760	4794	3	7	10	14	17	20	24	27	31	
4828	4862	4897	4931	4965	4999	5033	5067	5101	5135	3	7	10	14	17	20	24	27	31	
5169	5203	5238	5272	5306	5340	5374	5408	5442	5476	3	7	10	14	17	20	24	27	31	
105510	5544	5578	5612	5646	5680	5714	5749	5783	5817	3	7	10	14	17	20	24	27	31	
5851	5885	5919	5953	5987	6021	6055	6089	6123	6157	3	7	10	14	17	20	24	27	31	
6191	6225	6259	6293	6327	6361	6395	6429	6463	6497	3	7	10	14	17	20	24	27	31	
6531	6565	6599	6633	6667	6701	6735	6769	6803	6837	3	7	10	14	17	20	24	27	31	
6870	6904	6938	6972	7006	7040	7074	7108	7142	7176	3	7	10	14	17	20	24	27	31	
107210	7244	7278	7312	7346	7380	7413	7447	7481	7515	3	7	10	14	17	20	24	27	30	
7549	7583	7617	7651	7685	7719	7752	7786	7820	7854	3	7	10	14	17	20	24	27	30	
7888	7922	7956	7990	8023	8057	8091	8125	8159	8193	3	7	10	14	17	20	24	27	30	
8227	8260	8294	8328	8362	8396	8430	8463	8497	8531	3	7	10	13	17	20	24	27	30	
8565	8599	8633	8666	8700	8734	8768	8802	8835	8869	3	7	10	13	17	20	24	27	30	
108903	8937	8971	9004	9038	9072	9106	9140	9173	9207	3	7	10	13	17	20	24	27	30	
9241	9275	9308	9342	9376	9410	9443	9477	9511	9545	3	7	10	13	17	20	24	27	30	
9578	9612	9646	9680	9713	9747	9781	9815	9848	9882	3	7	10	13	17	20	24	27	30	
9916	9950	9983	0017	0051	0084	0118	0152	0185	0219	3	7	10	13	17	20	24	27	30	
110253	0287	0320	0354	0388	0421	0455	0489	0522	0556	3	7	10	13	17	20	24	27	30	
110590	0623	0657	0691	0724	0758	0792	0825	0859	0893	3	7	10	13	17	20	24	27	30	
0926	0960	0993	1027	1061	1094	1128	1162	1195	1229	3	7	10	13	17	20	24	27	30	
1262	1296	1330	1363	1397	1431	1464	1498	1531	1565	3	7	10	13	17	20	24	27	30	
1598	1632	1666	1699	1733	1766	1800	1834	1867	1901	3	7	10	13	17	20	24	27	30	
1934	1968	2001	2035	2068	2102	2136	2169	2203	2236	3	7	10	13	17	20	24	27	30	
112270	2303	2337	2370	2404	2437	2471	2504	2538	2571	3	7	10	13	17	20	23	27	30	
2605	2638	2672	2705	2739	2772	2806	2839	2873	2906	3	7	10	13	17	20	23	27	30	
2940	2973	3007	3040	3074	3107	3141	3174	3208	3241	3	7	10	13	17	20	23	27	30	
3275	3308	3342	3375	3408	3442	3475	3509	3542	3576	3	7	10	13	17	20	23	27	30	
3609	3643	3676	3709	3743	3776	3810	3843	3876	3910	3	7	10	13	17	20	23	27	30	
0	1	2	3	4	5	6	7	8	9	Proportional parts.									
										1	2	3	4	5	6	7	8	9	

LOGARITHMS OF NUMBERS from 1000000 to 1839999; Part the Second.

Nat. No.	0 1 2 3 4 5 6 7 8 9										Proportional parts.									
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9		
1300	113943	3977	4010	4044	4077	4110	4144	4177	4210	4244	3	7	10	13	17	20	23	27	30	
1301	4277	4311	4344	4377	4411	4444	4477	4511	4544	4578	3	7	10	13	17	20	23	27	30	
1302	4611	4644	4678	4711	4744	4778	4811	4844	4878	4911	3	7	10	13	17	20	23	27	30	
1303	4944	4978	5011	5044	5078	5111	5144	5178	5211	5244	3	7	10	13	17	20	23	27	30	
1304	5278	5311	5344	5377	5411	5444	5477	5511	5544	5577	3	7	10	13	17	20	23	27	30	
1305	5610	5644	5677	5710	5744	5777	5810	5843	5877	5910	3	7	10	13	17	20	23	27	30	
1306	5943	5976	6010	6043	6076	6109	6143	6176	6209	6242	3	7	10	13	17	20	23	27	30	
1307	6276	6309	6342	6375	6408	6442	6475	6508	6541	6574	3	7	10	13	17	20	23	27	30	
1308	6608	6641	6674	6707	6740	6774	6807	6840	6873	6906	3	7	10	13	17	20	23	27	30	
1309	6940	6973	7006	7039	7072	7105	7139	7172	7205	7238	3	7	10	13	17	20	23	27	30	
1310	7271	7304	7338	7371	7404	7437	7470	7503	7536	7570	3	7	10	13	17	20	23	26	30	
1311	7603	7636	7669	7702	7735	7768	7801	7834	7868	7901	3	7	10	13	17	20	23	26	30	
1312	7934	7967	8000	8033	8066	8099	8132	8165	8199	8232	3	7	10	13	17	20	23	26	30	
1313	8265	8298	8331	8364	8397	8430	8463	8496	8529	8562	3	7	10	13	17	20	23	26	30	
1314	8595	8628	8661	8694	8728	8761	8794	8827	8860	8893	3	7	10	13	17	20	23	26	30	
1315	118926	8959	8992	9025	9058	9091	9124	9157	9190	9223	3	7	10	13	16	20	23	26	30	
1316	9256	9289	9322	9355	9388	9421	9454	9487	9520	9553	3	7	10	13	16	20	23	26	30	
1317	9586	9619	9652	9685	9718	9751	9784	9817	9849	9882	3	7	10	13	16	20	23	26	30	
1318	9915	9948	9981	10014	10047	10080	10113	10146	10179	10212	3	7	10	13	16	20	23	26	30	
1319	120245	0278	0311	0344	0376	0409	0442	0475	0508	0541	3	7	10	13	16	20	23	26	30	
1320	120574	0607	0640	0673	0705	0738	0771	0804	0837	0870	3	7	10	13	16	20	23	26	30	
1321	0903	0936	0969	1001	1034	1067	1100	1133	1166	1199	3	7	10	13	16	20	23	26	30	
1322	1231	1264	1297	1330	1363	1396	1428	1461	1494	1527	3	7	10	13	16	20	23	26	30	
1323	1560	1593	1625	1658	1691	1724	1757	1790	1822	1855	3	7	10	13	16	20	23	26	30	
1324	1888	1921	1954	1986	2019	2052	2085	2117	2150	2183	3	7	10	13	16	20	23	26	30	
1325	122216	2249	2281	2314	2347	2380	2412	2445	2478	2511	3	7	10	13	16	20	23	26	29	
1326	2543	2576	2609	2642	2674	2707	2740	2773	2805	2838	3	7	10	13	16	20	23	26	29	
1327	2871	2904	2936	2969	3002	3034	3067	3100	3133	3165	3	7	10	13	16	20	23	26	29	
1328	3198	3231	3263	3296	3329	3362	3394	3427	3460	3492	3	7	10	13	16	20	23	26	29	
1329	3525	3558	3590	3623	3656	3688	3721	3754	3786	3819	3	7	10	13	16	20	23	26	29	
1330	123852	3884	3917	3950	3982	4015	4047	4080	4113	4145	3	7	10	13	16	20	23	26	29	
1331	4178	4211	4243	4276	4309	4341	4374	4406	4439	4472	3	7	10	13	16	20	23	26	29	
1332	4504	4537	4569	4602	4635	4667	4700	4732	4765	4798	3	7	10	13	16	20	23	26	29	
1333	4830	4863	4895	4928	4960	4993	5026	5058	5091	5123	3	7	10	13	16	20	23	26	29	
1334	5156	5188	5221	5253	5286	5319	5351	5384	5416	5449	3	7	10	13	16	20	23	26	29	
1335	125481	5514	5546	5579	5611	5644	5676	5709	5741	5774	3	7	10	13	16	19	23	26	29	
1336	5806	5839	5871	5904	5936	5969	6001	6034	6066	6099	3	7	10	13	16	19	23	26	29	
1337	6131	6164	6196	6229	6261	6294	6326	6359	6391	6424	3	7	10	13	16	19	23	26	29	
1338	6456	6489	6521	6553	6586	6618	6651	6683	6716	6748	3	7	10	13	16	19	23	26	29	
1339	6781	6813	6845	6878	6910	6943	6975	7008	7040	7072	3	7	10	13	16	19	23	26	29	
1340	127105	7137	7170	7202	7234	7267	7299	7332	7364	7396	3	6	10	13	16	19	23	26	29	
1341	7429	7461	7493	7526	7558	7591	7623	7655	7688	7720	3	6	10	13	16	19	23	26	29	
1342	7752	7785	7817	7850	7882	7914	7947	7979	8011	8044	3	6	10	13	16	19	23	26	29	
1343	8076	8108	8141	8173	8205	8238	8270	8302	8335	8367	3	6	10	13	16	19	23	26	29	
1344	8399	8432	8464	8496	8528	8561	8593	8625	8658	8690	3	6	10	13	16	19	23	26	29	
1345	128722	8755	8787	8819	8851	8884	8916	8948	8980	9013	3	6	10	13	16	19	23	26	29	
1346	9045	9077	9110	9142	9174	9206	9239	9271	9303	9335	3	6	10	13	16	19	23	26	29	
1347	9368	9400	9432	9464	9496	9529	9561	9593	9625	9658	3	6	10	13	16	19	23	26	29	
1348	9690	9722	9754	9786	9819	9851	9883	9915	9948	9980	3	6	10	13	16	19	23	26	29	
1349	130012	0044	0076	0108	0141	0173	0205	0237	0269	0302	3	6	10	13	16	19	23	26	29	
1350	130334	0366	0398	0430	0462	0495	0527	0559	0591	0623	3	6	10	13	16	19	22	26	29	
1351	0655	0687	0720	0752	0784	0816	0848	0880	0912	0945	3	6	10	13	16	19	22	26	29	
1352	0977	1009	1041	1073	1105	1137	1169	1201	1234	1266	3	6	10	13	16	19	22	26	29	
1353	1298	1330	1362	1394	1426	1458	1490	1522	1554	1587	3	6	10	13	16	19	22	26	29	
1354	1610	1651	1683	1715	1747	1779	1811	1843	1875	1907	3	6	10	13	16	19	22	26	29	
1355	131939	1971	2003	2035	2067	2099	2132	2164	2196	2228	3	6	10	13	16	19	22	26	29	
1356	2260	2292	2324	2356	2388	2420	2452	2484	2516	2548	3	6	10	13	16	19	22	26	29	
1357	2580	2612	2644	2676	2708	2740	2772	2804	2836	2868	3	6	10	13	16	19	22	26	29	
1358	2900	2932	2964	2996	3028	3060	3092	3124	3155	3187	3	6	10	13	16	19	22	26	29	
1359	3219	3251	3283	3315	3347	3379	3411	3443	3475	3507	3	6	10	13	16	19	22	26	29	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts.									
1	2	3	4	5	6	7	8	9												

RITHMS OF NUMBERS from 1000000 to 1839999; Part the Second.

0	1	2	3	4	5	6	7	8	9	Proportional parts.								
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13539	3571	3603	3635	3667	3698	3730	3762	3794	3826	3	6	10	13	16	19	22	26	29
3858	3890	3922	3954	3986	4018	4049	4081	4113	4145	3	6	10	13	16	19	22	26	29
4177	4209	4241	4273	4305	4336	4368	4400	4432	4464	3	6	10	13	16	19	22	26	29
4496	4528	4560	4591	4623	4655	4687	4719	4751	4782	3	6	10	13	16	19	22	26	29
4814	4846	4878	4910	4942	4973	5005	5037	5069	5101	3	6	10	13	16	19	22	26	29
5133	5164	5196	5228	5260	5292	5323	5355	5387	5419	3	6	10	13	16	19	22	25	29
5451	5482	5514	5546	5578	5610	5641	5673	5705	5737	3	6	10	13	16	19	22	25	29
5768	5800	5832	5864	5896	5927	5959	5991	6023	6054	3	6	10	13	16	19	22	25	29
6086	6118	6150	6181	6213	6245	6276	6308	6340	6372	3	6	10	13	16	19	22	25	29
6403	6435	6467	6499	6530	6562	6594	6625	6657	6689	3	6	10	13	16	19	22	25	29
6721	6752	6784	6816	6847	6879	6911	6942	6974	7006	3	6	10	13	16	19	22	25	28
7037	7069	7101	7132	7164	7196	7227	7259	7291	7322	3	6	10	13	16	19	22	25	28
7354	7386	7417	7449	7481	7512	7544	7576	7607	7639	3	6	10	13	16	19	22	25	28
7670	7702	7734	7765	7797	7829	7860	7892	7923	7955	3	6	10	13	16	19	22	25	28
7987	8018	8050	8081	8113	8145	8176	8208	8239	8271	3	6	10	13	16	19	22	25	28
8303	8334	8366	8397	8429	8461	8492	8524	8555	8587	3	6	9	13	16	19	22	25	28
8618	8650	8682	8713	8745	8776	8808	8839	8871	8902	3	6	9	13	16	19	22	25	28
8934	8965	8997	9028	9060	9092	9123	9155	9186	9218	3	6	9	13	16	19	22	25	28
9249	9281	9312	9344	9375	9407	9438	9470	9501	9533	3	6	9	13	16	19	22	25	28
9564	9596	9627	9659	9690	9722	9753	9785	9816	9848	3	6	9	13	16	19	22	25	28
9879	9911	9942	9973	10005	10036	10068	10099	10131	10162	3	6	9	13	16	19	22	25	28
10194	10225	10257	10288	10319	10351	10382	10414	10445	10477	3	6	9	13	16	19	22	25	28
10508	10539	10571	10602	10634	10665	10697	10728	10759	10791	3	6	9	13	16	19	22	25	28
10822	10854	10885	10916	10948	10979	11011	11042	11073	11105	3	6	9	13	16	19	22	25	28
11136	11167	11199	11230	11262	11293	11324	11356	11387	11418	3	6	9	13	16	19	22	25	28
11450	11481	11512	11544	11575	11606	11638	11669	11701	11732	3	6	9	13	16	19	22	25	28
11763	11795	11826	11857	11888	11920	11951	11982	12014	12045	3	6	9	13	16	19	22	25	28
12076	12108	12139	12170	12202	12233	12264	12296	12327	12358	3	6	9	13	16	19	22	25	28
12389	12421	12452	12483	12515	12546	12577	12608	12640	12671	3	6	9	13	16	19	22	25	28
12702	12733	12765	12796	12827	12859	12890	12921	12952	12984	3	6	9	13	16	19	22	25	28
13015	13046	13077	13108	13140	13171	13202	13233	13265	13296	3	6	9	12	16	19	22	25	28
13327	13358	13390	13421	13452	13483	13514	13546	13577	13608	3	6	9	12	16	19	22	25	28
13639	13670	13702	13733	13764	13795	13826	13858	13889	13920	3	6	9	12	16	19	22	25	28
13951	13982	14013	14045	14076	14107	14138	14169	14200	14232	3	6	9	12	16	19	22	25	28
14263	14294	14325	14356	14387	14418	14450	14481	14512	14543	3	6	9	12	16	19	22	25	28
14574	14605	14636	14668	14699	14730	14761	14792	14823	14854	3	6	9	12	16	19	22	25	28
14885	14916	14948	14979	15010	15041	15072	15103	15134	15165	3	6	9	12	16	19	22	25	28
15196	15227	15259	15290	15321	15352	15383	15414	15445	15476	3	6	9	12	16	19	22	25	28
15507	15538	15569	15600	15631	15662	15693	15725	15756	15787	3	6	9	12	16	19	22	25	28
15818	15849	15880	15911	15942	15973	16004	16035	16066	16097	3	6	9	12	16	19	22	25	28
16128	16159	16190	16221	16252	16283	16314	16345	16376	16407	3	6	9	12	15	19	22	25	28
16438	16469	16500	16531	16562	16593	16624	16655	16686	16717	3	6	9	12	15	19	22	25	28
16748	16779	16810	16841	16872	16903	16934	16965	16996	17027	3	6	9	12	15	19	22	25	28
17058	17089	17120	17151	17182	17213	17243	17274	17305	17336	3	6	9	12	15	19	22	25	28
17367	17398	17429	17460	17491	17522	17553	17584	17614	17645	3	6	9	12	15	19	22	25	28
17676	17707	17738	17769	17800	17831	17862	17893	17923	17954	3	6	9	12	15	19	22	25	28
17985	18016	18047	18078	18109	18140	18171	18201	18232	18263	3	6	9	12	15	19	22	25	28
18294	18325	18356	18387	18417	18448	18479	18510	18541	18572	3	6	9	12	15	19	22	25	28
18603	18633	18664	18695	18726	18757	18788	18818	18849	18880	3	6	9	12	15	19	22	25	28
18911	18942	18973	19003	19034	19065	19096	19127	19157	19188	3	6	9	12	15	19	22	25	28
19219	19250	19281	19311	19342	19373	19404	19435	19465	19496	3	6	9	12	15	18	22	25	28
19527	19558	19589	19619	19650	19681	19712	19742	19773	19804	3	6	9	12	15	18	22	25	28
19835	19865	19896	19927	19958	19988	20019	20050	20081	20111	3	6	9	12	15	18	22	25	28
20142	20173	20204	20234	20265	20296	20326	20357	20388	20419	3	6	9	12	15	18	22	25	28
20449	20480	20511	20541	20572	20603	20634	20664	20695	20726	3	6	9	12	15	18	22	25	28
20756	20787	20818	20848	20879	20910	20941	20971	21002	21033	3	6	9	12	15	18	21	25	28
21063	21094	21125	21155	21186	21217	21247	21278	21308	21339	3	6	9	12	15	18	21	25	28
21370	21400	21431	21462	21492	21523	21554	21584	21615	21646	3	6	9	12	15	18	21	25	28
21676	21707	21737	21768	21799	21829	21860	21891	21921	21952	3	6	9	12	15	18	21	25	28
21982	22013	22044	22074	22105	22135	22166	22197	22227	22258	3	6	9	12	15	18	21	25	28
0	1	2	3	4	5	6	7	8	9	Proportional parts.								
										1	2	3	4	5	6	7	8	9

LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.											Proportional Parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
1420	152288	2319	2349	2380	2411	2441	2472	2502	2533	2563	3	6	9	12	15	18	21	24	27	
1421	2594	2625	2655	2686	2716	2747	2777	2808	2838	2869	3	6	9	12	15	18	21	24	27	
1422	2900	2930	2961	2991	3022	3052	3083	3113	3144	3174	3	6	9	12	15	18	21	24	27	
1423	3205	3235	3266	3296	3327	3357	3388	3418	3449	3479	3	6	9	12	15	18	21	24	27	
1424	3510	3540	3571	3601	3632	3662	3693	3723	3754	3784	3	6	9	12	15	18	21	24	27	
1425	153815	3845	3876	3906	3937	3967	3998	4028	4059	4089	3	6	9	12	15	18	21	24	27	
1426	4119	4150	4180	4211	4241	4272	4302	4333	4363	4393	3	6	9	12	15	18	21	24	27	
1427	4424	4454	4485	4515	4546	4576	4606	4637	4667	4698	3	6	9	12	15	18	21	24	27	
1428	4728	4759	4789	4819	4850	4880	4911	4941	4971	5002	3	6	9	12	15	18	21	24	27	
1429	5032	5063	5093	5123	5154	5184	5214	5245	5275	5306	3	6	9	12	15	18	21	24	27	
1430	155336	5366	5397	5427	5457	5488	5518	5549	5579	5609	3	6	9	12	15	18	21	24	27	
1431	5640	5670	5700	5731	5761	5791	5822	5852	5882	5913	3	6	9	12	15	18	21	24	27	
1432	5943	5973	6004	6034	6064	6095	6125	6155	6186	6216	3	6	9	12	15	18	21	24	27	
1433	6246	6276	6307	6337	6367	6398	6428	6458	6489	6519	3	6	9	12	15	18	21	24	27	
1434	6549	6579	6610	6640	6670	6701	6731	6761	6791	6822	3	6	9	12	15	18	21	24	27	
1435	156852	6882	6912	6943	6973	7003	7033	7064	7094	7124	3	6	9	12	15	18	21	24	27	
1436	7154	7185	7215	7245	7275	7306	7336	7366	7396	7426	3	6	9	12	15	18	21	24	27	
1437	7457	7487	7517	7547	7578	7608	7638	7668	7698	7729	3	6	9	12	15	18	21	24	27	
1438	7759	7789	7819	7849	7880	7910	7940	7970	8000	8031	3	6	9	12	15	18	21	24	27	
1439	8061	8091	8121	8151	8181	8212	8242	8272	8302	8332	3	6	9	12	15	18	21	24	27	
1440	158362	8362	8392	8423	8453	8483	8513	8543	8574	8604	3	6	9	12	15	18	21	24	27	
1441	8664	8694	8724	8754	8784	8815	8845	8875	8905	8935	3	6	9	12	15	18	21	24	27	
1442	8965	8995	9025	9056	9086	9116	9146	9176	9206	9236	3	6	9	12	15	18	21	24	27	
1443	9266	9296	9326	9357	9387	9417	9447	9477	9507	9537	3	6	9	12	15	18	21	24	27	
1444	9567	9597	9627	9657	9687	9717	9748	9778	9808	9838	3	6	9	12	15	18	21	24	27	
1445	159868	9868	9898	9928	9958	9988	10018	10048	10078	10108	3	6	9	12	15	18	21	24	27	
1446	10168	10198	10228	10258	10288	10318	10348	10378	10408	10438	3	6	9	12	15	18	21	24	27	
1447	10468	10498	10528	10558	10588	10618	10648	10678	10708	10738	3	6	9	12	15	18	21	24	27	
1448	10768	10798	10828	10858	10888	10918	10948	10978	11008	11038	3	6	9	12	15	18	21	24	27	
1449	11068	11098	11128	11158	11188	11218	11248	11278	11308	11338	3	6	9	12	15	18	21	24	27	
1450	11368	11398	11428	11458	11488	11518	11548	11578	11607	11637	3	6	9	12	15	18	21	24	27	
1451	11667	11697	11727	11757	11787	11817	11847	11877	11907	11937	3	6	9	12	15	18	21	24	27	
1452	11967	11996	12026	12056	12086	12116	12146	12176	12206	12236	3	6	9	12	15	18	21	24	27	
1453	12266	12295	12325	12355	12385	12415	12445	12475	12505	12534	3	6	9	12	15	18	21	24	27	
1454	12564	12594	12624	12654	12684	12714	12744	12773	12803	12833	3	6	9	12	15	18	21	24	27	
1455	12863	12893	12923	12952	12982	13012	13042	13072	13102	13131	3	6	9	12	15	18	21	24	27	
1456	13161	13191	13221	13251	13281	13310	13340	13370	13400	13430	3	6	9	12	15	18	21	24	27	
1457	13460	13489	13519	13549	13579	13609	13638	13668	13698	13728	3	6	9	12	15	18	21	24	27	
1458	13757	13787	13817	13847	13877	13906	13936	13966	13996	14025	3	6	9	12	15	18	21	24	27	
1459	14055	14085	14115	14145	14174	14204	14234	14264	14293	14323	3	6	9	12	15	18	21	24	27	
1460	14353	14383	14412	14442	14472	14502	14531	14561	14591	14620	3	6	9	12	15	18	21	24	27	
1461	14650	14680	14710	14739	14769	14799	14828	14858	14888	14918	3	6	9	12	15	18	21	24	27	
1462	14947	14977	15007	15036	15066	15096	15126	15155	15185	15215	3	6	9	12	15	18	21	24	27	
1463	15244	15274	15304	15333	15363	15393	15422	15452	15482	15511	3	6	9	12	15	18	21	24	27	
1464	15541	15571	15600	15630	15660	15689	15719	15749	15778	15808	3	6	9	12	15	18	21	24	27	
1465	15838	15867	15897	15926	15956	15986	16015	16045	16075	16104	3	6	9	12	15	18	21	24	27	
1466	16134	16164	16193	16223	16252	16282	16312	16341	16371	16400	3	6	9	12	15	18	21	24	27	
1467	16430	16460	16489	16519	16548	16578	16608	16637	16667	16696	3	6	9	12	15	18	21	24	27	
1468	16726	16756	16785	16815	16844	16874	16903	16933	16963	16992	3	6	9	12	15	18	21	24	27	
1469	17022	17051	17081	17110	17140	17170	17199	17229	17258	17288	3	6	9	12	15	18	21	24	27	
1470	17317	17347	17376	17406	17435	17465	17495	17524	17554	17583	3	6	9	12	15	18	21	24	27	
1471	17613	17642	17672	17701	17731	17760	17790	17819	17849	17878	3	6	9	12	15	18	21	24	27	
1472	17908	17937	17967	17996	18026	18055	18085	18114	18144	18173	3	6	9	12	15	18	21	24	27	
1473	18203	18232	18262	18291	18321	18350	18380	18409	18439	18468	3	6	9	12	15	18	21	24	27	
1474	18497	18527	18556	18586	18615	18645	18674	18704	18733	18763	3	6	9	12	15	18	21	24	27	
1475	168792	8821	8851	8880	8910	8939	8969	8998	9027	9057	3	6	9	12	15	18	21	24	27	
1476	9086	9116	9145	9175	9204	9233	9263	9292	9322	9351	3	6	9	12	15	18	21	24	27	
1477	9380	9410	9439	9469	9498	9527	9557	9586	9616	9645	3	6	9	12	15	18	21	24	27	
1478	9674	9704	9733	9763	9792	9821	9851	9880	9909	9939	3	6	9	12	15	18	21	24	27	
1479	9968	9997	10027	10056	10086	10115	10144	10174	10203	10232	3	6	9	12	15	18	21	24	27	
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LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

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1481	0555	0584	0614	0643	0672	0702	0731	0760	0790	0819	3	6	9	12	15	18	21	23	26	
1482	0848	0877	0907	0936	0965	0995	1024	1053	1083	1112	3	6	9	12	15	18	21	23	26	
1483	1141	1170	1200	1229	1258	1288	1317	1346	1375	1405	3	6	9	12	15	18	21	23	26	
1484	1434	1463	1492	1522	1551	1580	1609	1639	1668	1697	3	6	9	12	15	18	21	23	26	
1485	17126	1756	1785	1814	1843	1873	1902	1931	1960	1990	3	6	9	12	15	18	20	23	26	
1486	2019	2048	2077	2106	2136	2165	2194	2223	2253	2282	3	6	9	12	15	18	20	23	26	
1487	2311	2340	2369	2399	2428	2457	2486	2515	2545	2574	3	6	9	12	15	18	20	23	26	
1488	2603	2632	2661	2690	2720	2749	2778	2807	2836	2865	3	6	9	12	15	18	20	23	26	
1489	2895	2924	2953	2982	3011	3040	3070	3099	3128	3157	3	6	9	12	15	18	20	23	26	
1490	3215	3245	3274	3303	3332	3361	3390	3419	3448		3	6	9	12	15	17	20	23	26	
1491	3478	3507	3536	3565	3594	3623	3652	3681	3711	3740	3	6	9	12	15	17	20	23	26	
1492	3769	3798	3827	3856	3885	3914	3943	3972	4002	4031	3	6	9	12	15	17	20	23	26	
1493	4060	4089	4118	4147	4176	4205	4234	4263	4292	4321	3	6	9	12	15	17	20	23	26	
1494	4351	4380	4409	4438	4467	4496	4525	4554	4583	4612	3	6	9	12	15	17	20	23	26	
1495	4641	4670	4699	4728	4757	4786	4815	4844	4873	4902	3	6	9	12	15	17	20	23	26	
1496	4932	4961	4990	5019	5048	5077	5106	5135	5164	5193	3	6	9	12	15	17	20	23	26	
1497	5222	5251	5280	5309	5338	5367	5396	5425	5454	5483	3	6	9	12	15	17	20	23	26	
1498	5513	5541	5570	5599	5628	5657	5686	5715	5744	5773	3	6	9	12	15	17	20	23	26	
1499	5802	5831	5860	5888	5917	5946	5975	6004	6033	6062	3	6	9	12	15	17	20	23	26	
1500	6101	6120	6149	6178	6207	6236	6265	6294	6323	6352	3	6	9	12	14	17	20	23	26	
1501	6381	6410	6439	6467	6496	6525	6554	6583	6612	6641	3	6	9	12	14	17	20	23	26	
1502	6670	6699	6728	6757	6786	6815	6844	6873	6902	6930	3	6	9	12	14	17	20	23	26	
1503	6959	6988	7017	7046	7074	7103	7132	7161	7190	7219	3	6	9	12	14	17	20	23	26	
1504	7248	7277	7306	7334	7363	7392	7421	7450	7479	7508	3	6	9	12	14	17	20	23	26	
1505	7536	7565	7594	7623	7652	7681	7710	7738	7767	7796	3	6	9	12	14	17	20	23	26	
1506	7825	7854	7883	7911	7940	7969	7998	8027	8056	8084	3	6	9	12	14	17	20	23	26	
1507	8113	8142	8171	8200	8228	8257	8286	8315	8344	8372	3	6	9	12	14	17	20	23	26	
1508	8401	8430	8459	8488	8517	8545	8574	8603	8632	8660	3	6	9	12	14	17	20	23	26	
1509	8680	8718	8747	8776	8804	8833	8862	8891	8919	8948	3	6	9	12	14	17	20	23	26	
1510	8977	9006	9034	9063	9091	9121	9149	9178	9207	9236	3	6	9	11	14	17	20	23	26	
1511	9264	9293	9322	9351	9380	9408	9437	9466	9494	9523	3	6	9	11	14	17	20	23	26	
1512	9552	9580	9609	9638	9667	9695	9724	9753	9781	9810	3	6	9	11	14	17	20	23	26	
1513	9839	9868	9896	9925	9954	9982	10011	10040	10068	10097	3	6	9	11	14	17	20	23	26	
1514	10126	10155	10183	10212	10241	10269	10298	10327	10355	10384	3	6	9	11	14	17	20	23	26	
1515	10413	10441	10470	10499	10527	10555	10584	10613	10642	10671	3	6	9	11	14	17	20	23	26	
1516	10699	10728	10756	10785	10814	10842	10871	10900	10928	10957	3	6	9	11	14	17	20	23	26	
1517	10986	11014	11043	11071	11100	11129	11157	11186	11214	11243	3	6	9	11	14	17	20	23	26	
1518	11272	11300	11329	11358	11386	11415	11443	11472	11501	11529	3	6	9	11	14	17	20	23	26	
1519	11558	11586	11615	11643	11672	11701	11729	11758	11786	11815	3	6	9	11	14	17	20	23	26	
1520	11844	11872	11901	11929	11958	11986	12015	12043	12072	12101	3	6	9	11	14	17	20	23	26	
1521	12129	12158	12186	12215	12243	12272	12300	12329	12358	12386	3	6	9	11	14	17	20	23	26	
1522	12415	12443	12472	12500	12529	12557	12586	12614	12643	12671	3	6	9	11	14	17	20	23	26	
1523	12700	12728	12757	12785	12814	12842	12871	12900	12928	12956	3	6	9	11	14	17	20	23	26	
1524	12985	13013	13042	13070	13099	13127	13156	13184	13213	13241	3	6	9	11	14	17	20	23	26	
1525	13327	13355	13383	13412	13440	13468	13497	13525	13554	13582	3	6	9	11	14	17	20	23	26	
1526	13554	13583	13611	13640	13668	13697	13725	13754	13782	13811	3	6	9	11	14	17	20	23	26	
1527	13839	13867	13896	13924	13953	13981	14010	14038	14066	14095	3	6	9	11	14	17	20	23	26	
1528	14123	14152	14180	14209	14237	14265	14294	14322	14351	14379	3	6	9	11	14	17	20	23	26	
1529	14407	14436	14464	14493	14521	14549	14578	14606	14635	14663	3	6	9	11	14	17	20	23	26	
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1531	14975	15003	15032	15060	15088	15117	15145	15174	15202	15230	3	6	9	11	14	17	20	23	26	
1532	15259	15287	15315	15344	15372	15400	15429	15457	15485	15514	3	6	9	11	14	17	20	23	26	
1533	15542	15570	15598	15627	15655	15684	15712	15740	15769	15797	3	6	9	11	14	17	20	23	26	
1534	15825	15853	15882	15910	15939	15967	15996	16024	16052	16080	3	6	9	11	14	17	20	23	26	
1535	160108	6137	6165	6193	6221	6250	6278	6306	6335	6363	3	6	8	11	14	17	20	23	25	
1536	6371	6409	6448	6486	6524	6563	6601	6639	6677	6716	3	6	8	11	14	17	20	23	25	
1537	6674	6712	6750	6789	6827	6865	6903	6942	6980	7018	3	6	8	11	14	17	20	23	25	
1538	6956	6995	7033	7071	7109	7147	7185	7223	7261		3	6	8	11	14	17	20	23	25	
1539	7239	7277	7295	7323	7351	7380	7408	7436	7464	7492	3	6	8	11	14	17	20	23	25	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
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LOGARITHMS OF NUMBERS from 1000000 to 1839999; Part the Second.

Nat. No.											Proportional parts.									
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1541	7803	7831	7859	7887	7915	7943	7972	8000	8028	8056	3	6	8	11	14	17	20	23	25	
1542	8084	8112	8141	8169	8197	8225	8253	8281	8310	8338	3	6	8	11	14	17	20	23	25	
1543	8366	8394	8422	8450	8478	8507	8535	8563	8591	8619	3	6	8	11	14	17	20	23	25	
1544	8647	8675	8703	8732	8760	8788	8816	8844	8872	8900	3	6	8	11	14	17	20	23	25	
1545	188928	8957	8985	9013	9041	9069	9097	9125	9153	9181	3	6	8	11	14	17	20	22	25	
1546	9209	9238	9266	9294	9322	9350	9378	9406	9434	9462	3	6	8	11	14	17	20	22	25	
1547	9490	9518	9546	9574	9603	9631	9659	9687	9715	9743	3	6	8	11	14	17	20	22	25	
1548	9771	9799	9827	9855	9883	9911	9939	9967	9995	●●23	3	6	8	11	14	17	20	22	25	
1549	190051	0079	0107	0135	0164	0192	0220	0248	0276	0304	3	6	8	11	14	17	20	22	25	
1550	190332	0360	0388	0416	0444	0472	0500	0528	0556	0584	3	6	8	11	14	17	20	22	25	
1551	0612	0640	0668	0696	0724	0752	0780	0808	0836	0864	3	6	8	11	14	17	20	22	25	
1552	0892	0920	0948	0976	1004	1032	1060	1088	1115	1143	3	6	8	11	14	17	20	22	25	
1553	1171	1199	1227	1255	1283	1311	1339	1367	1395	1423	3	6	8	11	14	17	20	22	25	
1554	1451	1479	1507	1535	1563	1591	1619	1647	1674	1702	3	6	8	11	14	17	20	22	25	
1555	191730	1758	1786	1814	1842	1870	1898	1926	1954	1982	3	6	8	11	14	17	20	22	25	
1556	2010	2037	2065	2093	2121	2149	2177	2205	2233	2261	3	6	8	11	14	17	20	22	25	
1557	2289	2316	2344	2372	2400	2428	2456	2484	2512	2540	3	6	8	11	14	17	20	22	25	
1558	2567	2595	2623	2651	2679	2707	2735	2762	2790	2818	3	6	8	11	14	17	20	22	25	
1559	2846	2874	2902	2930	2957	2985	3013	3041	3069	3097	3	6	8	11	14	17	19	22	25	
1560	193125	3152	3180	3208	3236	3264	3292	3319	3347	3375	3	6	8	11	14	17	19	22	25	
1561	3403	3431	3458	3486	3514	3542	3570	3598	3625	3653	3	6	8	11	14	17	19	22	25	
1562	3681	3709	3737	3764	3792	3820	3848	3876	3903	3931	3	6	8	11	14	17	19	22	25	
1563	3959	3987	4014	4042	4070	4098	4126	4153	4181	4209	3	6	8	11	14	17	19	22	25	
1564	4237	4264	4292	4320	4348	4376	4403	4431	4459	4487	3	6	8	11	14	17	19	22	25	
1565	194514	4543	4570	4598	4625	4653	4681	4709	4736	4764	3	6	8	11	14	17	19	22	25	
1566	4792	4819	4847	4875	4903	4930	4958	4986	5014	5041	3	6	8	11	14	17	19	22	25	
1567	5069	5097	5124	5152	5180	5207	5235	5263	5291	5318	3	6	8	11	14	17	19	22	25	
1568	5346	5374	5401	5429	5457	5484	5512	5540	5568	5595	3	6	8	11	14	17	19	22	25	
1569	5623	5651	5678	5706	5734	5761	5789	5817	5844	5872	3	6	8	11	14	17	19	22	25	
1570	195900	5927	5955	5983	6010	6038	6066	6093	6121	6148	3	6	8	11	14	17	19	22	25	
1571	6176	6204	6231	6259	6287	6314	6342	6370	6397	6425	3	6	8	11	14	17	19	22	25	
1572	6452	6480	6508	6535	6563	6591	6618	6646	6673	6701	3	6	8	11	14	17	19	22	25	
1573	6729	6756	6784	6811	6839	6867	6894	6922	6949	6977	3	6	8	11	14	17	19	22	25	
1574	7005	7032	7060	7087	7115	7143	7170	7198	7225	7253	3	6	8	11	14	17	19	22	25	
1575	197281	7308	7336	7363	7391	7418	7446	7473	7501	7529	3	6	8	11	14	17	19	22	25	
1576	7556	7584	7611	7639	7666	7694	7721	7749	7777	7804	3	6	8	11	14	17	19	22	25	
1577	7832	7859	7887	7914	7942	7969	7997	8024	8052	8079	3	6	8	11	14	17	19	22	25	
1578	8107	8134	8162	8190	8217	8245	8272	8300	8327	8355	3	6	8	11	14	16	19	22	25	
1579	8382	8410	8437	8465	8492	8520	8547	8575	8602	8630	3	6	8	11	14	16	19	22	25	
1580	198657	8685	8712	8739	8767	8794	8822	8849	8877	8904	3	6	8	11	14	16	19	22	25	
1581	8932	8959	8987	9014	9042	9069	9097	9124	9152	9179	3	6	8	11	14	16	19	22	25	
1582	9206	9234	9261	9289	9316	9344	9371	9399	9426	9453	3	6	8	11	14	16	19	22	25	
1583	9481	9508	9536	9563	9591	9618	9645	9673	9700	9728	3	6	8	11	14	16	19	22	25	
1584	9755	9783	9810	9837	9865	9892	9920	9947	9974	●●●2	3	6	8	11	14	16	19	22	25	
1585	200029	0057	0084	0111	0139	0166	0194	0221	0248	0276	3	6	8	11	14	16	19	22	25	
1586	0303	0331	0358	0385	0413	0440	0467	0495	0522	0550	3	5	8	11	14	16	19	22	25	
1587	0577	0604	0632	0659	0686	0714	0741	0768	0796	0823	3	5	8	11	14	16	19	22	25	
1588	0850	0878	0905	0932	0960	0987	1015	1042	1069	1097	3	5	8	11	14	16	19	22	25	
1589	1124	1151	1179	1206	1233	1260	1288	1315	1342	1370	3	5	8	11	14	16	19	22	25	
1590	201397	1424	1452	1479	1506	1534	1561	1588	1616	1643	3	5	8	11	14	16	19	22	25	
1591	1670	1697	1725	1752	1779	1807	1834	1861	1888	1916	3	5	8	11	14	16	19	22	25	
1592	1943	1970	1998	2025	2052	2079	2107	2134	2161	2188	3	5	8	11	14	16	19	22	25	
1593	2216	2243	2270	2298	2325	2352	2379	2407	2434	2461	3	5	8	11	14	16	19	22	25	
1594	2488	2516	2543	2570	2597	2624	2652	2679	2706	2733	3	5	8	11	14	16	19	22	25	
1595	202761	2788	2815	2842	2870	2897	2924	2951	2978	3006	3	5	8	11	14	16	19	22	25	
1596	3033	3060	3087	3114	3142	3169	3196	3223	3250	3278	3	5	8	11	14	16	19	22	24	
1597	3305	3332	3359	3386	3414	3441	3468	3495	3522	3550	3	5	8	11	14	16	19	22	24	
1598	3577	3604	3631	3658	3685	3713	3740	3767	3794	3821	3	5	8	11	14	16	19	22	24	
1599	3848	3876	3903	3930	3957	3984	4011	4038	4066	4093	3	5	8	11	14	16	19	22	24	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts.									
											1	2	3	4	5	6	7	8	9	

LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.											Proportional Parts.									
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1601	4391	4418	4446	4473	4500	4527	4554	4581	4608	4635	3	5	8	11	14	16	19	22	24	
1602	4662	4690	4717	4744	4771	4798	4825	4852	4879	4906	3	5	8	11	14	16	19	22	24	
1603	4933	4961	4988	5015	5042	5069	5096	5123	5150	5177	3	5	8	11	14	16	19	22	24	
1604	5204	5231	5258	5286	5313	5340	5367	5394	5421	5448	3	5	8	11	14	16	19	22	24	
1605	5475	5502	5529	5556	5583	5610	5637	5664	5691	5718	3	5	8	11	14	16	19	22	24	
1606	5745	5773	5800	5827	5854	5881	5908	5935	5962	5989	3	5	8	11	14	16	19	22	24	
1607	6016	6043	6070	6097	6124	6151	6178	6205	6232	6259	3	5	8	11	14	16	19	22	24	
1608	6286	6313	6340	6367	6394	6421	6448	6475	6502	6529	3	5	8	11	14	16	19	22	24	
1609	6556	6583	6610	6637	6664	6691	6718	6745	6772	6799	3	5	8	11	14	16	19	22	24	
1610	6826	6853	6880	6907	6934	6961	6988	7015	7042	7069	3	5	8	11	14	16	19	22	24	
1611	7095	7122	7149	7176	7203	7230	7257	7284	7311	7338	3	5	8	11	14	16	19	22	24	
1612	7365	7392	7419	7446	7473	7500	7527	7554	7580	7607	3	5	8	11	14	16	19	22	24	
1613	7634	7661	7688	7715	7742	7769	7796	7823	7850	7877	3	5	8	11	14	16	19	22	24	
1614	7903	7930	7957	7984	8011	8038	8065	8092	8119	8146	3	5	8	11	14	16	19	22	24	
1615	8172	8199	8226	8253	8280	8307	8334	8361	8388	8414	3	5	8	11	13	16	19	21	24	
1616	8441	8468	8495	8522	8549	8576	8603	8629	8656	8683	3	5	8	11	13	16	19	21	24	
1617	8710	8737	8764	8791	8817	8844	8871	8898	8925	8952	3	5	8	11	13	16	19	21	24	
1618	8978	9005	9032	9059	9086	9113	9139	9166	9193	9220	3	5	8	11	13	16	19	21	24	
1619	9247	9274	9300	9327	9354	9381	9408	9435	9461	9488	3	5	8	11	13	16	19	21	24	
1620	9515	9542	9569	9595	9622	9649	9676	9703	9729	9756	3	5	8	11	13	16	19	21	24	
1621	9783	9810	9837	9863	9890	9917	9944	9970	9997	10024	3	5	8	11	13	16	19	21	24	
1622	10051	10078	10104	10131	10158	10185	10211	10238	10265	10292	3	5	8	11	13	16	19	21	24	
1623	10318	10345	10372	10399	10425	10452	10479	10506	10532	10559	3	5	8	11	13	16	19	21	24	
1624	10586	10613	10639	10666	10693	10720	10746	10773	10800	10827	3	5	8	11	13	16	19	21	24	
1625	10853	10880	10907	10933	10960	10987	11014	11040	11067	11094	3	5	8	11	13	16	19	21	24	
1626	11120	11147	11174	11201	11227	11254	11281	11307	11334	11361	3	5	8	11	13	16	19	21	24	
1627	11388	11414	11441	11468	11494	11521	11548	11574	11601	11628	3	5	8	11	13	16	19	21	24	
1628	11654	11681	11708	11734	11761	11788	11814	11841	11868	11894	3	5	8	11	13	16	19	21	24	
1629	11921	11948	11974	12001	12028	12054	12081	12108	12134	12161	3	5	8	11	13	16	19	21	24	
1630	12188	12214	12241	12267	12294	12321	12347	12374	12401	12427	3	5	8	11	13	16	19	21	24	
1631	12454	12481	12507	12534	12560	12587	12614	12640	12667	12693	3	5	8	11	13	16	19	21	24	
1632	12720	12747	12773	12800	12827	12853	12880	12906	12933	12960	3	5	8	11	13	16	19	21	24	
1633	12986	13013	13039	13066	13093	13119	13146	13172	13199	13225	3	5	8	11	13	16	19	21	24	
1634	13252	13279	13305	13332	13358	13385	13411	13438	13465	13491	3	5	8	11	13	16	19	21	24	
1635	13518	13544	13571	13597	13624	13650	13677	13704	13730	13757	3	5	8	11	13	16	19	21	24	
1636	13783	13810	13836	13863	13889	13916	13942	13969	13996	14022	3	5	8	11	13	16	19	21	24	
1637	14049	14075	14102	14128	14155	14181	14208	14234	14261	14287	3	5	8	11	13	16	19	21	24	
1638	14314	14340	14367	14393	14420	14446	14473	14499	14526	14552	3	5	8	11	13	16	19	21	24	
1639	14579	14605	14632	14658	14685	14711	14738	14764	14791	14817	3	5	8	11	13	16	19	21	24	
1640	14844	14870	14897	14923	14950	14976	15003	15029	15056	15082	3	5	8	11	13	16	19	21	24	
1641	15109	15135	15161	15188	15214	15241	15267	15294	15320	15347	3	5	8	11	13	16	19	21	24	
1642	15373	15400	15426	15452	15479	15505	15532	15558	15585	15611	3	5	8	11	13	16	19	21	24	
1643	15638	15664	15690	15717	15743	15770	15796	15823	15849	15875	3	5	8	11	13	16	19	21	24	
1644	15902	15928	15955	15981	16007	16034	16060	16087	16113	16139	3	5	8	11	13	16	19	21	24	
1645	16166	16192	16219	16245	16271	16298	16324	16351	16377	16403	3	5	8	11	13	16	18	21	24	
1646	16430	16456	16483	16509	16535	16562	16588	16614	16641	16667	3	5	8	11	13	16	18	21	24	
1647	16694	16720	16746	16773	16799	16825	16852	16878	16904	16931	3	5	8	11	13	16	18	21	24	
1648	16957	16984	17010	17036	17063	17089	17115	17142	17168	17194	3	5	8	11	13	16	18	21	24	
1649	17221	17247	17273	17300	17326	17352	17379	17405	17431	17458	3	5	8	11	13	16	18	21	24	
1650	17484	17510	17537	17563	17589	17615	17642	17668	17694	17721	3	5	8	11	13	16	18	21	24	
1651	17747	17773	17800	17826	17852	17879	17905	17931	17957	17984	3	5	8	11	13	16	18	21	24	
1652	18010	18036	18063	18089	18115	18141	18168	18194	18220	18247	3	5	8	11	13	16	18	21	24	
1653	18273	18299	18325	18352	18378	18404	18430	18457	18483	18509	3	5	8	11	13	16	18	21	24	
1654	18535	18562	18588	18614	18640	18667	18693	18719	18745	18772	3	5	8	11	13	16	18	21	24	
1655	18798	18824	18850	18877	18903	18929	18955	18982	19008	19034	3	5	8	10	13	16	18	21	24	
1656	19060	19087	19113	19139	19165	19191	19218	19244	19270	19296	3	5	8	10	13	16	18	21	24	
1657	19322	19349	19375	19401	19427	19453	19480	19506	19532	19558	3	5	8	10	13	16	18	21	24	
1658	19584	19611	19637	19663	19689	19715	19742	19768	19794	19820	3	5	8	10	13	16	18	21	24	
1659	19846	19873	19899	19925	19951	19977	20003	20030	20056	20082	3	5	8	10	13	16	18	21	24	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
	1	2	3	4	5	6	7	8	9											

LOGARITHMS OF NUMBERS, from 1000000 to 1839999; *Part the Second.*

Nat. No.											Proportional Parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
1660	220108	0134	0160	0187	0213	0239	0265	0291	0317	0343	3	5	8	10	13	16	18	21	24	
1661	0370	0396	0422	0448	0474	0500	0526	0553	0579	0605	3	5	8	10	13	16	18	21	24	
1662	0631	0657	0683	0709	0735	0762	0788	0814	0840	0866	3	5	8	10	13	16	18	21	24	
1663	0892	0918	0944	0971	0997	1023	1049	1075	1101	1127	3	5	8	10	13	16	18	21	24	
1664	1153	1179	1205	1232	1258	1284	1310	1336	1362	1388	3	5	8	10	13	16	18	21	24	
1665	221414	1440	1466	1492	1519	1545	1571	1597	1623	1649	3	5	8	10	13	16	18	21	23	
1666	1675	1701	1727	1753	1779	1805	1831	1857	1883	1909	3	5	8	10	13	16	18	21	23	
1667	1936	1962	1988	2014	2040	2066	2092	2118	2144	2170	3	5	8	10	13	16	18	21	23	
1668	2196	2222	2248	2274	2300	2326	2352	2378	2404	2430	3	5	8	10	13	16	18	21	23	
1669	2456	2482	2508	2534	2560	2586	2612	2638	2664	2690	3	5	8	10	13	16	18	21	23	
1670	222716	2742	2768	2794	2820	2846	2872	2898	2924	2950	3	5	8	10	13	16	18	21	23	
1671	2976	3002	3028	3054	3080	3106	3132	3158	3184	3210	3	5	8	10	13	16	18	21	23	
1672	3236	3262	3288	3314	3340	3366	3392	3418	3444	3470	3	5	8	10	13	16	18	21	23	
1673	3496	3522	3548	3574	3600	3626	3652	3678	3704	3729	3	5	8	10	13	16	18	21	23	
1674	3755	3781	3807	3833	3859	3885	3911	3937	3963	3989	3	5	8	10	13	16	18	21	23	
1675	224015	4041	4067	4093	4118	4144	4170	4196	4222	4248	3	5	8	10	13	16	18	21	23	
1676	4274	4300	4326	4352	4378	4404	4429	4455	4481	4507	3	5	8	10	13	16	18	21	23	
1677	4533	4559	4585	4611	4637	4662	4688	4714	4740	4766	3	5	8	10	13	16	18	21	23	
1678	4792	4818	4844	4870	4895	4921	4947	4973	4999	5025	3	5	8	10	13	16	18	21	23	
1679	5051	5077	5102	5128	5154	5180	5206	5232	5258	5283	3	5	8	10	13	16	18	21	23	
1680	225309	5335	5361	5387	5413	5438	5464	5490	5516	5542	3	5	8	10	13	16	18	21	23	
1681	5568	5594	5619	5645	5671	5697	5723	5748	5774	5800	3	5	8	10	13	16	18	21	23	
1682	5826	5852	5878	5903	5929	5955	5981	6007	6032	6058	3	5	8	10	13	16	18	21	23	
1683	6084	6110	6136	6161	6187	6213	6239	6265	6290	6316	3	5	8	10	13	16	18	21	23	
1684	6342	6368	6394	6419	6445	6471	6497	6523	6548	6574	3	5	8	10	13	16	18	21	23	
1685	226600	6626	6652	6677	6703	6729	6754	6780	6806	6832	3	5	8	10	13	15	18	21	23	
1686	6858	6883	6909	6935	6961	6986	7012	7038	7064	7089	3	5	8	10	13	15	18	21	23	
1687	7115	7141	7167	7192	7218	7244	7269	7295	7321	7347	3	5	8	10	13	15	18	21	23	
1688	7372	7398	7424	7450	7475	7501	7527	7552	7578	7604	3	5	8	10	13	15	18	21	23	
1689	7630	7655	7681	7707	7732	7758	7784	7810	7835	7861	3	5	8	10	13	15	18	21	23	
1690	227887	7912	7938	7964	7989	8015	8041	8067	8092	8118	3	5	8	10	13	15	18	21	23	
1691	8144	8169	8195	8221	8246	8272	8298	8323	8349	8375	3	5	8	10	13	15	18	21	23	
1692	8400	8426	8452	8477	8503	8529	8554	8580	8606	8631	3	5	8	10	13	15	18	21	23	
1693	8657	8683	8708	8734	8760	8785	8811	8836	8862	8888	3	5	8	10	13	15	18	21	23	
1694	8913	8939	8965	8990	9016	9042	9067	9093	9118	9144	3	5	8	10	13	15	18	21	23	
1695	229170	9195	9221	9247	9272	9298	9323	9349	9375	9400	3	5	8	10	13	15	18	20	23	
1696	9426	9451	9477	9503	9528	9554	9579	9605	9631	9656	3	5	8	10	13	15	18	20	23	
1697	9682	9707	9733	9759	9784	9810	9835	9861	9886	9912	3	5	8	10	13	15	18	20	23	
1698	9938	9963	9989	●●14	●●40	●●66	●●91	●117	●142	●168	3	5	8	10	13	15	18	20	23	
1699	230193	0219	0244	0270	0296	0321	0347	0372	0398	0423	3	5	8	10	13	15	18	20	23	
1700	230449	0474	0500	0526	0551	0577	0602	0628	0653	0679	3	5	8	10	13	15	18	20	23	
1701	0704	0730	0755	0781	0806	0832	0857	0883	0908	0934	3	5	8	10	13	15	18	20	23	
1702	0960	0985	1011	1036	1062	1087	1113	1138	1164	1189	3	5	8	10	13	15	18	20	23	
1703	1215	1240	1266	1291	1317	1342	1368	1393	1419	1444	3	5	8	10	13	15	18	20	23	
1704	1470	1495	1521	1546	1571	1597	1622	1648	1673	1699	3	5	8	10	13	15	18	20	23	
1705	231724	1750	1775	1801	1826	1852	1877	1903	1928	1954	3	5	8	10	13	15	18	20	23	
1706	1979	2004	2030	2055	2081	2106	2132	2157	2183	2208	3	5	8	10	13	15	18	20	23	
1707	2233	2259	2284	2310	2335	2361	2386	2412	2437	2462	3	5	8	10	13	15	18	20	23	
1708	2488	2513	2539	2564	2590	2615	2640	2666	2691	2717	3	5	8	10	13	15	18	20	23	
1709	2742	2767	2793	2818	2844	2869	2894	2920	2945	2971	3	5	8	10	13	15	18	20	23	
1710	232996	3021	3047	3072	3098	3123	3148	3174	3199	3225	3	5	8	10	13	15	18	20	23	
1711	3250	3275	3301	3326	3351	3377	3402	3428	3453	3478	3	5	8	10	13	15	18	20	23	
1712	3504	3529	3554	3580	3605	3631	3656	3681	3707	3732	3	5	8	10	13	15	18	20	23	
1713	3757	3783	3808	3833	3859	3884	3909	3935	3960	3985	3	5	8	10	13	15	18	20	23	
1714	4011	4036	4061	4087	4112	4137	4163	4188	4213	4239	3	5	8	10	13	15	18	20	23	
1715	234264	4289	4315	4340	4365	4391	4416	4441	4467	4492	3	5	8	10	13	15	18	20	23	
1716	4517	4543	4568	4593	4618	4644	4669	4694	4720	4745	3	5	8	10	13	15	18	20	23	
1717	4770	4796	4821	4846	4871	4897	4922	4947	4973	4998	3	5	8	10	13	15	18	20	23	
1718	5023	5048	5074	5099	5124	5149	5175	5200	5225	5251	3	5	8	10	13	15	18	20	23	
1719	5276	5301	5326	5352	5377	5402	5427	5453	5478	5503	3	5	8	10	13	15	18	20	23	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional Parts.									
										1	2	3	4	5	6	7	8	9		

TABLE XXVIII.

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RITHMS OF NUMBERS, from 1000000 to 1839999; Part the Second:

0	1	2	3	4	5	6	7	8	9	Proportional Parts.								
										1	2	3	4	5	6	7	8	9
35528	5554	5579	5604	5629	5655	5680	5705	5730	5756	3	5	8	10	13	15	18	20	23
5781	5806	5831	5857	5882	5907	5932	5957	5983	6008	3	5	8	10	13	15	18	20	23
6033	6058	6084	6109	6134	6159	6184	6210	6235	6260	3	5	8	10	13	15	18	20	23
6285	6310	6336	6361	6386	6411	6436	6462	6487	6512	3	5	8	10	13	15	18	20	23
6537	6562	6588	6613	6638	6663	6688	6714	6739	6764	3	5	8	10	13	15	18	20	23
6789	6814	6839	6865	6890	6915	6940	6965	6990	7016	3	5	8	10	13	15	18	20	23
7041	7066	7091	7116	7141	7167	7192	7217	7242	7267	3	5	8	10	13	15	18	20	23
7292	7317	7343	7368	7393	7418	7443	7468	7493	7519	3	5	8	10	13	15	18	20	23
7544	7569	7594	7619	7644	7669	7694	7720	7745	7770	3	5	8	10	13	15	18	20	23
7795	7820	7845	7870	7895	7921	7946	7971	7996	8021	3	5	8	10	13	15	18	20	23
8046	8071	8096	8121	8146	8172	8197	8222	8247	8272	3	5	8	10	13	15	18	20	23
8297	8322	8347	8372	8397	8422	8448	8473	8498	8523	3	5	8	10	13	15	18	20	23
8548	8573	8598	8623	8648	8673	8698	8723	8748	8773	3	5	8	10	13	15	18	20	23
8799	8824	8849	8874	8899	8924	8949	8974	8999	9024	3	5	8	10	13	15	18	20	23
9049	9074	9099	9124	9149	9174	9199	9224	9249	9274	3	5	8	10	13	15	18	20	23
9299	9324	9349	9375	9400	9425	9450	9475	9500	9525	3	5	8	10	12	15	17	20	22
9550	9575	9600	9625	9650	9675	9700	9725	9750	9775	3	5	8	10	12	15	17	20	22
9800	9825	9850	9875	9900	9925	9950	9975	●●●●	●●25	3	5	8	10	12	15	17	20	22
40050	0075	0100	0125	0150	0175	0200	0225	0250	0275	3	5	8	10	12	15	17	20	22
0300	0325	0350	0374	0399	0424	0449	0474	0499	0524	3	5	8	10	12	15	17	20	22
0549	0574	0599	0624	0649	0674	0699	0724	0749	0774	3	5	8	10	12	15	17	20	22
0799	0824	0849	0874	0898	0923	0948	0973	0998	1023	3	5	8	10	12	15	17	20	22
1048	1073	1098	1123	1148	1173	1198	1223	1248	1272	3	5	8	10	12	15	17	20	22
1297	1322	1347	1372	1397	1422	1447	1472	1497	1522	3	5	8	10	12	15	17	20	22
1546	1571	1596	1621	1646	1671	1696	1721	1746	1770	3	5	8	10	12	15	17	20	22
41795	1820	1845	1870	1895	1920	1945	1970	1994	2019	3	5	7	10	12	15	17	20	22
2044	2069	2094	2119	2144	2169	2193	2218	2243	2268	3	5	7	10	12	15	17	20	22
2293	2318	2343	2367	2392	2417	2442	2467	2492	2517	3	5	7	10	12	15	17	20	22
2541	2566	2591	2616	2641	2666	2690	2715	2740	2765	3	5	7	10	12	15	17	20	22
2790	2815	2839	2864	2889	2914	2939	2964	2988	3013	3	5	7	10	12	15	17	20	22
43038	3063	3088	3112	3137	3162	3187	3212	3236	3261	3	5	7	10	12	15	17	20	22
3286	3311	3336	3360	3385	3410	3435	3460	3484	3509	3	5	7	10	12	15	17	20	22
3534	3559	3584	3608	3633	3658	3683	3708	3732	3757	3	5	7	10	12	15	17	20	22
3782	3807	3831	3856	3881	3906	3930	3955	3980	4005	3	5	7	10	12	15	17	20	22
4030	4054	4079	4104	4129	4153	4178	4203	4228	4252	3	5	7	10	12	15	17	20	22
44277	4302	4327	4351	4376	4401	4426	4450	4475	4500	3	5	7	10	12	15	17	20	22
4524	4549	4574	4599	4623	4648	4673	4698	4722	4747	3	5	7	10	12	15	17	20	22
4772	4796	4821	4846	4871	4895	4920	4945	4969	4994	3	5	7	10	12	15	17	20	22
5019	5044	5068	5093	5118	5142	5167	5192	5216	5241	3	5	7	10	12	15	17	20	22
5266	5290	5315	5340	5365	5389	5414	5439	5463	5488	3	5	7	10	12	15	17	20	22
45513	5537	5562	5587	5611	5636	5661	5685	5710	5735	3	5	7	10	12	15	17	20	22
5759	5784	5809	5833	5858	5883	5907	5932	5957	5981	3	5	7	10	12	15	17	20	22
6006	6031	6055	6080	6104	6129	6154	6178	6203	6228	3	5	7	10	12	15	17	20	22
6252	6277	6302	6326	6351	6375	6400	6425	6449	6474	3	5	7	10	12	15	17	20	22
6499	6523	6548	6572	6597	6622	6646	6671	6695	6720	3	5	7	10	12	15	17	20	22
46745	6769	6794	6818	6843	6868	6892	6917	6941	6966	3	5	7	10	12	15	17	20	22
6991	7015	7040	7064	7089	7114	7138	7163	7187	7212	3	5	7	10	12	15	17	20	22
7236	7261	7286	7310	7335	7359	7384	7409	7433	7458	3	5	7	10	12	15	17	20	22
7482	7507	7531	7556	7580	7605	7630	7654	7679	7703	3	5	7	10	12	15	17	20	22
7728	7752	7777	7801	7826	7851	7875	7900	7924	7949	3	5	7	10	12	15	17	20	22
47973	7998	8022	8047	8071	8096	8120	8145	8169	8194	3	5	7	10	12	15	17	20	22
8219	8243	8268	8292	8317	8341	8366	8390	8415	8439	3	5	7	10	12	15	17	20	22
8464	8488	8513	8537	8562	8586	8611	8635	8660	8684	3	5	7	10	12	15	17	20	22
8709	8733	8758	8782	8807	8831	8856	8880	8905	8929	3	5	7	10	12	15	17	20	22
8954	8978	9003	9027	9051	9076	9100	9125	9149	9174	3	5	7	10	12	15	17	20	22
49198	9223	9247	9272	9296	9321	9345	9370	9394	9418	3	5	7	10	12	15	17	20	22
9443	9467	9492	9516	9541	9565	9590	9614	9638	9663	2	5	7	10	12	15	17	20	22
9687	9712	9736	9761	9785	9810	9834	9858	9883	9907	2	5	7	10	12	15	17	20	22
9932	9956	9981	●●●5	●●29	●●54	●●78	●103	●127	●151	2	5	7	10	12	15	17	20	22
50170	0200	0225	0249	0274	0298	0322	0347	0371	0396	2	5	7	10	12	15	17	20	22
0	1	2	3	4	5	6	7	8	9	Proportional Parts.								
										1	2	3	4	5	6	7	8	9

LOGARITHMS OF NUMBERS from 1000000 to 1839999; Part the Second.

Nat. No.											Proportional parts.									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
1780	250420	0444	0469	0493	0518	0542	0566	0591	0615	0639	2	5	7	10	12	15	17	20	22	
1781	0664	0688	0713	0737	0761	0786	0810	0835	0859	0883	2	5	7	10	12	15	17	20	22	
1782	0908	0932	0956	0981	1005	1029	1054	1078	1103	1127	2	5	7	10	12	15	17	20	22	
1783	1151	1176	1200	1224	1249	1273	1297	1322	1346	1370	2	5	7	10	12	15	17	20	22	
1784	1395	1419	1443	1468	1492	1517	1541	1565	1590	1614	2	5	7	10	12	15	17	20	22	
1785	251638	1662	1687	1711	1735	1760	1784	1808	1833	1857	2	5	7	10	12	15	17	19	22	
1786	1881	1906	1930	1954	1979	2003	2027	2052	2076	2100	2	5	7	10	12	15	17	19	22	
1787	2125	2149	2173	2197	2222	2246	2270	2295	2319	2343	2	5	7	10	12	15	17	19	22	
1788	2367	2392	2416	2440	2465	2489	2513	2537	2562	2586	2	5	7	10	12	15	17	19	22	
1789	2610	2635	2659	2683	2707	2732	2756	2780	2804	2829	2	5	7	10	12	15	17	19	22	
1790	252853	2877	2902	2926	2950	2974	2999	3023	3047	3071	2	5	7	10	12	15	17	19	22	
1791	3096	3120	3144	3168	3193	3217	3241	3265	3289	3314	2	5	7	10	12	15	17	19	22	
1792	3338	3362	3386	3411	3435	3459	3483	3508	3532	3556	2	5	7	10	12	15	17	19	22	
1793	3580	3604	3629	3653	3677	3701	3726	3750	3774	3798	2	5	7	10	12	15	17	19	22	
1794	3822	3847	3871	3895	3919	3943	3968	3992	4016	4040	2	5	7	10	12	15	17	19	22	
1795	254064	4089	4113	4137	4161	4185	4210	4234	4258	4282	2	5	7	10	12	14	17	19	22	
1796	4306	4330	4355	4379	4403	4427	4451	4476	4500	4524	2	5	7	10	12	14	17	19	22	
1797	4548	4572	4596	4621	4645	4669	4693	4717	4741	4765	2	5	7	10	12	14	17	19	22	
1798	4790	4814	4838	4862	4886	4910	4935	4959	4983	5007	2	5	7	10	12	14	17	19	22	
1799	5031	5055	5079	5104	5128	5152	5176	5200	5224	5248	2	5	7	10	12	14	17	19	22	
1800	255272	5297	5321	5345	5369	5393	5417	5441	5465	5490	2	5	7	10	12	14	17	19	22	
1801	5514	5538	5562	5586	5610	5634	5658	5682	5707	5731	2	5	7	10	12	14	17	19	22	
1802	5755	5779	5803	5827	5851	5875	5899	5923	5947	5972	2	5	7	10	12	14	17	19	22	
1803	5996	6020	6044	6068	6092	6116	6140	6164	6188	6212	2	5	7	10	12	14	17	19	22	
1804	6236	6261	6285	6309	6333	6357	6381	6405	6429	6453	2	5	7	10	12	14	17	19	22	
1805	256477	6501	6525	6549	6573	6597	6621	6646	6670	6694	2	5	7	10	12	14	17	19	22	
1806	6718	6742	6766	6790	6814	6838	6862	6886	6910	6934	2	5	7	10	12	14	17	19	22	
1807	6958	6982	7006	7030	7054	7078	7102	7126	7150	7174	2	5	7	10	12	14	17	19	22	
1808	7198	7222	7246	7270	7294	7318	7342	7366	7391	7415	2	5	7	10	12	14	17	19	22	
1809	7439	7463	7487	7511	7535	7559	7583	7607	7631	7655	2	5	7	10	12	14	17	19	22	
1810	257679	7703	7727	7751	7775	7799	7823	7846	7870	7894	2	5	7	10	12	14	17	19	22	
1811	7918	7942	7966	7990	8014	8038	8062	8086	8110	8134	2	5	7	10	12	14	17	19	22	
1812	8158	8182	8206	8230	8254	8278	8302	8326	8350	8374	2	5	7	10	12	14	17	19	22	
1813	8398	8422	8446	8470	8494	8518	8542	8566	8590	8613	2	5	7	10	12	14	17	19	22	
1814	8637	8661	8685	8709	8733	8757	8781	8805	8829	8853	2	5	7	10	12	14	17	19	22	
1815	258877	8901	8924	8948	8972	8996	9020	9044	9068	9092	2	5	7	10	12	14	17	19	22	
1816	9116	9140	9164	9188	9211	9235	9259	9283	9307	9331	2	5	7	10	12	14	17	19	22	
1817	9355	9379	9403	9427	9450	9474	9498	9522	9546	9570	2	5	7	10	12	14	17	19	22	
1818	9594	9618	9642	9665	9689	9713	9737	9761	9785	9809	2	5	7	10	12	14	17	19	22	
1819	9833	9857	9880	9904	9928	9952	9976	●●●●	●●●●	●●●●	2	5	7	10	12	14	17	19	22	
1820	260071	0095	0119	0143	0167	0191	0214	0238	0262	0286	2	5	7	10	12	14	17	19	22	
1821	0310	0334	0358	0381	0405	0429	0453	0477	0501	0524	2	5	7	10	12	14	17	19	22	
1822	0548	0572	0596	0620	0644	0667	0691	0715	0739	0763	2	5	7	10	12	14	17	19	22	
1823	0787	0810	0834	0858	0882	0906	0930	0953	0977	1001	2	5	7	10	12	14	17	19	22	
1824	1025	1049	1072	1096	1120	1144	1168	1191	1215	1239	2	5	7	10	12	14	17	19	22	
1825	261263	1287	1310	1334	1358	1382	1406	1429	1453	1477	2	5	7	10	12	14	17	19	22	
1826	1501	1525	1548	1572	1596	1620	1643	1667	1691	1715	2	5	7	10	12	14	17	19	22	
1827	1738	1762	1786	1810	1834	1857	1881	1905	1929	1952	2	5	7	10	12	14	17	19	22	
1828	1976	2000	2024	2047	2071	2095	2119	2142	2166	2190	2	5	7	10	12	14	17	19	22	
1829	2214	2237	2261	2285	2309	2332	2356	2380	2404	2427	2	5	7	10	12	14	17	19	22	
1830	262451	2475	2499	2522	2546	2570	2593	2617	2641	2665	2	5	7	10	12	14	17	19	22	
1831	2688	2712	2736	2759	2783	2807	2831	2854	2878	2902	2	5	7	10	12	14	17	19	22	
1832	2925	2949	2973	2997	3020	3044	3068	3091	3115	3139	2	5	7	10	12	14	17	19	22	
1833	3162	3186	3210	3233	3257	3281	3305	3328	3352	3376	2	5	7	10	12	14	17	19	22	
1834	3399	3423	3447	3470	3494	3518	3541	3565	3589	3612	2	5	7	10	12	14	17	19	22	
1835	263636	3660	3683	3707	3731	3754	3778	3802	3825	3849	2	5	7	9	12	14	17	19	22	
1836	3873	3896	3920	3944	3967	3991	4015	4038	4062	4085	2	5	7	9	12	14	17	19	22	
1837	4109	4133	4156	4180	4204	4227	4251	4275	4298	4322	2	5	7	9	12	14	17	19	22	
1838	4345	4369	4393	4416	4440	4464	4487	4511	4534	4558	2	5	7	9	12	14	17	19	22	
1839	4582	4605	4629	4653	4676	4700	4723	4747	4771	4794	2	5	7	9	12	14	17	19	22	
Nat. No.	0	1	2	3	4	5	6	7	8	9	Proportional parts.									
										1	2	3	4	5	6	7	8	9		

PROPORTIONAL LOGARITHMS.

Seconds		0 HOUR, or 0 DEGREE.												Seconds	
		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'		
0	0.0000	2.2553	1.9542	1.7782	1.6532	1.5563	1.4771	1.4102	1.3522	1.3010	1.2553	1.2139	0	1.2139	
1	4.0334	2.2481	1.9506	1.7757	1.6514	1.5549	1.4759	1.4091	1.3513	1.3002	1.2545	1.2132	1	1.2132	
2	3.7324	2.2410	1.9471	1.7734	1.6496	1.5534	1.4747	1.4081	1.3504	1.2994	1.2538	1.2126	2	1.2126	
3	3.5563	2.2341	1.9435	1.7710	1.6478	1.5520	1.4735	1.4071	1.3495	1.2986	1.2531	1.2119	3	1.2119	
4	3.4314	2.2272	1.9400	1.7686	1.6460	1.5506	1.4723	1.4061	1.3486	1.2978	1.2524	1.2113	4	1.2113	
5	3.3345	2.2205	1.9365	1.7663	1.6443	1.5491	1.4711	1.4050	1.3477	1.2970	1.2517	1.2106	5	1.2106	
6	3.2553	2.2139	1.9331	1.7639	1.6425	1.5477	1.4699	1.4040	1.3468	1.2962	1.2510	1.2099	6	1.2099	
7	3.1883	2.2073	1.9296	1.7616	1.6407	1.5463	1.4688	1.4030	1.3459	1.2954	1.2502	1.2093	7	1.2093	
8	3.1303	2.2009	1.9262	1.7593	1.6390	1.5449	1.4676	1.4020	1.3450	1.2946	1.2495	1.2086	8	1.2086	
9	3.0792	2.1946	1.9228	1.7570	1.6372	1.5435	1.4664	1.4010	1.3441	1.2939	1.2488	1.2080	9	1.2080	
10	3.0334	2.1883	1.9195	1.7547	1.6355	1.5421	1.4652	1.4000	1.3432	1.2931	1.2481	1.2073	10	1.2073	
11	2.9920	2.1822	1.9162	1.7524	1.6338	1.5407	1.4640	1.3989	1.3423	1.2923	1.2474	1.2067	11	1.2067	
12	2.9542	2.1761	1.9128	1.7501	1.6320	1.5393	1.4629	1.3979	1.3415	1.2915	1.2467	1.2061	12	1.2061	
13	2.9195	2.1701	1.9096	1.7479	1.6303	1.5379	1.4617	1.3969	1.3406	1.2907	1.2460	1.2054	13	1.2054	
14	2.8873	2.1642	1.9063	1.7456	1.6286	1.5365	1.4606	1.3959	1.3397	1.2899	1.2453	1.2048	14	1.2048	
15	2.8573	2.1584	1.9031	1.7434	1.6269	1.5351	1.4594	1.3949	1.3388	1.2891	1.2445	1.2041	15	1.2041	
16	2.8293	2.1526	1.8999	1.7412	1.6253	1.5337	1.4582	1.3939	1.3379	1.2883	1.2438	1.2035	16	1.2035	
17	2.8030	2.1469	1.8967	1.7390	1.6235	1.5324	1.4571	1.3929	1.3371	1.2876	1.2431	1.2028	17	1.2028	
18	2.7782	2.1413	1.8935	1.7368	1.6218	1.5310	1.4559	1.3919	1.3362	1.2868	1.2424	1.2022	18	1.2022	
19	2.7547	2.1358	1.8904	1.7346	1.6201	1.5296	1.4548	1.3910	1.3353	1.2860	1.2417	1.2016	19	1.2016	
20	2.7324	2.1303	1.8873	1.7324	1.6185	1.5283	1.4536	1.3900	1.3345	1.2852	1.2410	1.2009	20	1.2009	
21	2.7112	2.1249	1.8842	1.7302	1.6168	1.5269	1.4525	1.3890	1.3336	1.2845	1.2403	1.2003	21	1.2003	
22	2.6910	2.1196	1.8811	1.7281	1.6151	1.5256	1.4514	1.3880	1.3327	1.2837	1.2396	1.1996	22	1.1996	
23	2.6717	2.1143	1.8781	1.7259	1.6135	1.5242	1.4502	1.3870	1.3319	1.2829	1.2389	1.1990	23	1.1990	
24	2.6532	2.1091	1.8751	1.7238	1.6118	1.5229	1.4491	1.3860	1.3310	1.2821	1.2382	1.1984	24	1.1984	
25	2.6355	2.1040	1.8721	1.7217	1.6102	1.5215	1.4480	1.3851	1.3301	1.2814	1.2375	1.1977	25	1.1977	
26	2.6185	2.0989	1.8691	1.7196	1.6085	1.5202	1.4468	1.3841	1.3293	1.2806	1.2368	1.1971	26	1.1971	
27	2.6021	2.0939	1.8661	1.7175	1.6069	1.5189	1.4457	1.3831	1.3284	1.2798	1.2360	1.1965	27	1.1965	
28	2.5863	2.0889	1.8632	1.7154	1.6053	1.5175	1.4440	1.3821	1.3276	1.2791	1.2352	1.1958	28	1.1958	
29	2.5710	2.0840	1.8603	1.7133	1.6037	1.5162	1.4435	1.3812	1.3267	1.2783	1.2348	1.1952	29	1.1952	
30	2.5563	2.0792	1.8573	1.7112	1.6021	1.5149	1.4424	1.3802	1.3259	1.2775	1.2341	1.1946	30	1.1946	
31	2.5421	2.0744	1.8544	1.7091	1.6005	1.5136	1.4412	1.3792	1.3250	1.2768	1.2334	1.1939	31	1.1939	
32	2.5283	2.0696	1.8516	1.7071	1.5989	1.5123	1.4401	1.3783	1.3242	1.2760	1.2327	1.1933	32	1.1933	
33	2.5149	2.0649	1.8487	1.7050	1.5973	1.5110	1.4390	1.3773	1.3233	1.2753	1.2320	1.1927	33	1.1927	
34	2.5019	2.0603	1.8459	1.7030	1.5957	1.5097	1.4379	1.3764	1.3225	1.2745	1.2313	1.1921	34	1.1921	
35	2.4894	2.0557	1.8431	1.7010	1.5941	1.5084	1.4368	1.3754	1.3216	1.2738	1.2307	1.1914	35	1.1914	
36	2.4771	2.0512	1.8403	1.6990	1.5925	1.5071	1.4357	1.3745	1.3208	1.2730	1.2300	1.1908	36	1.1908	
37	2.4652	2.0467	1.8375	1.6970	1.5909	1.5058	1.4346	1.3735	1.3199	1.2722	1.2293	1.1902	37	1.1902	
38	2.4536	2.0422	1.8348	1.6950	1.5894	1.5045	1.4335	1.3726	1.3191	1.2715	1.2286	1.1896	38	1.1896	
39	2.4424	2.0378	1.8320	1.6930	1.5878	1.5032	1.4325	1.3716	1.3183	1.2707	1.2279	1.1889	39	1.1889	
40	2.4314	2.0334	1.8293	1.6910	1.5863	1.5019	1.4314	1.3707	1.3174	1.2700	1.2272	1.1883	40	1.1883	
41	2.4206	2.0291	1.8266	1.6890	1.5847	1.5007	1.4303	1.3697	1.3166	1.2692	1.2266	1.1877	41	1.1877	
42	2.4102	2.0248	1.8239	1.6871	1.5832	1.4994	1.4292	1.3688	1.3158	1.2685	1.2259	1.1871	42	1.1871	
43	2.4000	2.0206	1.8212	1.6851	1.5816	1.4981	1.4281	1.3678	1.3149	1.2678	1.2252	1.1865	43	1.1865	
44	2.3900	2.0164	1.8186	1.6832	1.5801	1.4969	1.4270	1.3669	1.3141	1.2670	1.2245	1.1859	44	1.1859	
45	2.3802	2.0122	1.8159	1.6812	1.5786	1.4956	1.4260	1.3660	1.3133	1.2663	1.2239	1.1852	45	1.1852	
46	2.3707	2.0081	1.8133	1.6793	1.5771	1.4943	1.4249	1.3650	1.3124	1.2655	1.2232	1.1846	46	1.1846	
47	2.3613	2.0040	1.8107	1.6774	1.5755	1.4931	1.4238	1.3641	1.3116	1.2648	1.2225	1.1840	47	1.1840	
48	2.3522	2.0000	1.8081	1.6755	1.5740	1.4918	1.4228	1.3632	1.3108	1.2640	1.2218	1.1834	48	1.1834	
49	2.3432	1.9960	1.8055	1.6736	1.5725	1.4906	1.4217	1.3623	1.3100	1.2633	1.2212	1.1828	49	1.1828	
50	2.3345	1.9920	1.8030	1.6717	1.5710	1.4894	1.4206	1.3613	1.3091	1.2626	1.2205	1.1822	50	1.1822	
51	2.3259	1.9881	1.8004	1.6698	1.5695	1.4881	1.4196	1.3604	1.3083	1.2618	1.2198	1.1816	51	1.1816	
52	2.3174	1.9842	1.7979	1.6679	1.5680	1.4869	1.4185	1.3595	1.3075	1.2611	1.2192	1.1809	52	1.1809	
53	2.3091	1.9803	1.7954	1.6661	1.5666	1.4856	1.4175	1.3586	1.3067	1.2604	1.2185	1.1803	53	1.1803	
54	2.3010	1.9765	1.7929	1.6642	1.5651	1.4844	1.4164	1.3576	1.3059	1.2596	1.2178	1.1797	54	1.1797	
55	2.2931	1.9727	1.7904	1.6624	1.5636	1.4832	1.4154	1.3567	1.3051	1.2589	1.2172	1.1791	55	1.1791	
56	2.2852	1.9690	1.7879	1.6605	1.5621	1.4820	1.4143	1.3558	1.3043	1.2582	1.2165	1.1785	56	1.1785	
57	2.2775	1.9652	1.7855	1.6587	1.5607	1.4808	1.4133	1.3549	1.3034	1.2574	1.2159	1.1779	57	1.1779	
58	2.2700	1.9615	1.7830	1.6568	1.5592	1.4795	1.4122	1.3540	1.3026	1.2567	1.2152	1.1773	58	1.1773	
59	2.2626	1.9579	1.7806	1.6550	1.5578	1.4783	1.4112	1.3531	1.3018	1.2560	1.2145	1.1767	59	1.1767	
Seconds		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	Seconds	
0 HOUR, or 0 DEGREE.															

PROPORTIONAL LOGARITHMS.

0 HOUR, or 0 DEGREE.													
Seconds	12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	Seconds
0	1.1761	1.1413	1.1091	1.0792	1.0512	1.0248	1.0000	9765	9542	9331	9128	8935	0
1	1.1755	1.1408	1.1086	1.0787	1.0507	1.0244	9996	9761	9539	9327	9125	8932	1
2	1.1749	1.1402	1.1081	1.0782	1.0502	1.0240	9992	9758	9535	9324	9122	8929	2
3	1.1743	1.1397	1.1076	1.0777	1.0498	1.0235	9988	9754	9532	9320	9119	8926	3
4	1.1737	1.1391	1.1071	1.0773	1.0493	1.0231	9984	9750	9528	9317	9115	8923	4
5	1.1731	1.1386	1.1066	1.0768	1.0489	1.0227	9980	9746	9524	9313	9112	8920	5
6	1.1725	1.1380	1.1061	1.0763	1.0484	1.0223	9976	9742	9521	9310	9109	8917	6
7	1.1719	1.1374	1.1055	1.0758	1.0480	1.0219	9972	9739	9517	9306	9106	8913	7
8	1.1713	1.1369	1.1050	1.0753	1.0475	1.0214	9968	9735	9514	9303	9102	8910	8
9	1.1707	1.1363	1.1045	1.0749	1.0471	1.0210	9964	9731	9510	9300	9099	8907	9
10	1.1701	1.1358	1.1040	1.0744	1.0467	1.0206	9960	9727	9506	9296	9096	8904	10
11	1.1695	1.1352	1.1035	1.0739	1.0462	1.0202	9956	9723	9503	9293	9092	8901	11
12	1.1689	1.1347	1.1030	1.0734	1.0458	1.0197	9952	9720	9499	9289	9089	8898	12
13	1.1683	1.1342	1.1025	1.0730	1.0453	1.0193	9948	9716	9496	9286	9086	8895	13
14	1.1677	1.1336	1.1020	1.0725	1.0449	1.0189	9944	9712	9492	9283	9083	8892	14
15	1.1671	1.1331	1.1015	1.0720	1.0444	1.0185	9940	9708	9488	9279	9079	8888	15
16	1.1665	1.1325	1.1009	1.0715	1.0440	1.0181	9936	9705	9485	9276	9076	8885	16
17	1.1660	1.1320	1.1004	1.0711	1.0435	1.0176	9932	9701	9481	9272	9073	8882	17
18	1.1654	1.1314	1.0999	1.0706	1.0431	1.0172	9928	9697	9478	9269	9070	8879	18
19	1.1648	1.1309	1.0994	1.0701	1.0426	1.0168	9924	9693	9474	9266	9066	8876	19
20	1.1642	1.1303	1.0989	1.0696	1.0422	1.0164	9920	9690	9471	9262	9063	8873	20
21	1.1636	1.1298	1.0984	1.0692	1.0418	1.0160	9916	9686	9467	9259	9060	8870	21
22	1.1630	1.1292	1.0979	1.0687	1.0413	1.0156	9912	9682	9464	9255	9057	8867	22
23	1.1624	1.1287	1.0974	1.0682	1.0409	1.0151	9908	9678	9460	9252	9053	8864	23
24	1.1619	1.1282	1.0969	1.0678	1.0404	1.0147	9905	9675	9456	9249	9050	8861	24
25	1.1613	1.1276	1.0964	1.0673	1.0400	1.0143	9901	9671	9453	9245	9047	8857	25
26	1.1607	1.1271	1.0959	1.0668	1.0395	1.0139	9897	9667	9449	9242	9044	8854	26
27	1.1601	1.1266	1.0954	1.0663	1.0391	1.0135	9893	9664	9446	9238	9041	8851	27
28	1.1595	1.1260	1.0949	1.0659	1.0387	1.0131	9889	9660	9442	9235	9037	8848	28
29	1.1589	1.1255	1.0944	1.0654	1.0382	1.0126	9885	9656	9439	9232	9034	8845	29
30	1.1584	1.1249	1.0939	1.0649	1.0378	1.0122	9881	9652	9435	9228	9031	8842	30
31	1.1578	1.1244	1.0934	1.0645	1.0374	1.0118	9877	9649	9432	9225	9028	8839	31
32	1.1572	1.1239	1.0929	1.0640	1.0369	1.0114	9873	9645	9428	9222	9024	8836	32
33	1.1566	1.1233	1.0924	1.0635	1.0365	1.0110	9869	9641	9425	9218	9021	8833	33
34	1.1561	1.1228	1.0919	1.0631	1.0360	1.0106	9865	9638	9421	9215	9018	8830	34
35	1.1555	1.1223	1.0914	1.0626	1.0356	1.0102	9861	9634	9418	9212	9015	8827	35
36	1.1549	1.1217	1.0909	1.0621	1.0352	1.0098	9858	9630	9414	9208	9012	8824	36
37	1.1543	1.1212	1.0904	1.0617	1.0347	1.0093	9854	9626	9411	9205	9008	8821	37
38	1.1538	1.1207	1.0899	1.0612	1.0343	1.0089	9850	9623	9407	9201	9005	8817	38
39	1.1532	1.1201	1.0894	1.0608	1.0339	1.0085	9846	9619	9404	9198	9003	8814	39
40	1.1526	1.1196	1.0889	1.0603	1.0334	1.0081	9842	9615	9400	9195	8999	8811	40
41	1.1520	1.1191	1.0884	1.0598	1.0330	1.0077	9838	9612	9397	9191	8996	8808	41
42	1.1515	1.1186	1.0880	1.0594	1.0326	1.0073	9834	9608	9393	9188	8992	8805	42
43	1.1509	1.1180	1.0875	1.0589	1.0321	1.0069	9830	9604	9390	9185	8989	8802	43
44	1.1503	1.1175	1.0870	1.0585	1.0317	1.0065	9827	9601	9386	9181	8986	8799	44
45	1.1498	1.1170	1.0865	1.0580	1.0313	1.0061	9823	9597	9383	9178	8983	8796	45
46	1.1492	1.1164	1.0860	1.0575	1.0308	1.0057	9819	9593	9379	9175	8980	8793	46
47	1.1486	1.1159	1.0855	1.0571	1.0304	1.0053	9815	9590	9376	9171	8977	8790	47
48	1.1481	1.1154	1.0850	1.0566	1.0300	1.0049	9811	9586	9372	9168	8973	8787	48
49	1.1475	1.1149	1.0845	1.0562	1.0295	1.0044	9807	9582	9369	9165	8970	8784	49
50	1.1469	1.1143	1.0840	1.0557	1.0291	1.0040	9803	9579	9365	9162	8967	8781	50
51	1.1464	1.1138	1.0835	1.0552	1.0287	1.0036	9800	9575	9362	9158	8964	8778	51
52	1.1458	1.1133	1.0831	1.0548	1.0282	1.0032	9796	9571	9358	9155	8961	8775	52
53	1.1453	1.1128	1.0826	1.0543	1.0278	1.0028	9792	9568	9355	9152	8958	8772	53
54	1.1447	1.1123	1.0821	1.0539	1.0274	1.0024	9788	9564	9351	9148	8954	8769	54
55	1.1441	1.1117	1.0816	1.0534	1.0270	1.0020	9784	9561	9348	9145	8951	8766	55
56	1.1436	1.1112	1.0811	1.0530	1.0265	1.0016	9780	9557	9344	9142	8948	8763	56
57	1.1430	1.1107	1.0806	1.0525	1.0261	1.0012	9777	9553	9341	9138	8945	8760	57
58	1.1424	1.1102	1.0801	1.0521	1.0257	1.0008	9773	9550	9337	9135	8942	8757	58
59	1.1419	1.1097	1.0797	1.0516	1.0252	1.0004	9769	9546	9334	9132	8939	8754	59
Seconds	12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	Seconds
0 HOUR, or 0 DEGREE.													

TABLE XXIX.

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PROPORTIONAL LOGARITHMS.

0 HOUR, or 0 DEGREE.											Seconds
25'	26'	27'	28'	29'	30'	31'	32'	33'	34'	35'	
8573	8403	8239	8081	7929	7782	7639	7501	7368	7238	7112	0
8570	8400	8236	8079	7926	7779	7637	7499	7365	7236	7110	1
8568	8397	8234	8076	7924	7777	7634	7497	7363	7234	7108	2
8565	8395	8231	8073	7921	7774	7632	7494	7361	7232	7106	3
8562	8392	8228	8071	7919	7772	7630	7492	7359	7229	7104	4
8559	8389	8226	8068	7916	7769	7627	7490	7357	7227	7102	5
8556	8386	8223	8066	7914	7767	7625	7488	7354	7225	7100	6
8553	8384	8220	8063	7911	7765	7623	7485	7352	7223	7098	7
8550	8381	8218	8061	7909	7762	7620	7483	7350	7221	7096	8
8547	8378	8215	8058	7906	7760	7618	7481	7348	7219	7093	9
8544	8375	8212	8055	7904	7757	7616	7479	7346	7217	7091	10
8542	8372	8210	8053	7901	7755	7613	7476	7344	7215	7089	11
8539	8370	8207	8050	7899	7753	7611	7474	7341	7212	7087	12
8536	8367	8204	8048	7896	7750	7609	7472	7339	7210	7085	13
8533	8364	8202	8045	7894	7748	7607	7470	7337	7208	7083	14
8530	8361	8199	8043	7891	7745	7604	7467	7335	7206	7081	15
8527	8359	8196	8040	7889	7743	7602	7465	7333	7204	7079	16
8524	8356	8194	8037	7887	7741	7600	7463	7330	7202	7077	17
8522	8353	8191	8035	7884	7738	7597	7461	7328	7200	7075	18
8519	8350	8188	8032	7882	7736	7595	7458	7326	7198	7073	19
8516	8348	8186	8030	7879	7734	7593	7456	7324	7196	7071	20
8513	8345	8183	8027	7877	7731	7590	7454	7322	7193	7069	21
8510	8342	8181	8025	7874	7729	7588	7452	7320	7191	7067	22
8507	8339	8178	8022	7872	7726	7586	7450	7317	7189	7065	23
8504	8337	8175	8020	7869	7724	7583	7447	7315	7187	7063	24
8502	8334	8173	8017	7867	7722	7581	7445	7313	7185	7061	25
8499	8331	8170	8014	7864	7719	7579	7443	7311	7183	7059	26
8496	8328	8167	8012	7862	7717	7577	7441	7309	7181	7057	27
8493	8326	8165	8009	7859	7714	7574	7438	7307	7179	7055	28
8490	8323	8162	8007	7857	7712	7572	7436	7304	7177	7053	29
8487	8320	8159	8004	7855	7710	7570	7434	7302	7175	7050	30
8484	8318	8157	8002	7852	7707	7567	7432	7300	7172	7048	31
8482	8315	8154	7999	7850	7705	7565	7429	7298	7170	7046	32
8479	8312	8152	7997	7847	7703	7563	7427	7296	7168	7044	33
8476	8309	8149	7994	7845	7700	7560	7425	7294	7166	7042	34
8473	8307	8146	7992	7842	7698	7558	7423	7291	7164	7040	35
8470	8304	8144	7989	7840	7696	7556	7421	7289	7162	7038	36
8467	8301	8141	7987	7837	7693	7554	7418	7287	7160	7036	37
8465	8298	8138	7984	7835	7691	7551	7416	7285	7158	7034	38
8462	8296	8136	7981	7832	7688	7549	7414	7283	7156	7032	39
8459	8293	8133	7979	7830	7686	7547	7412	7281	7154	7030	40
8456	8290	8131	7976	7828	7684	7544	7409	7279	7152	7028	41
8453	8288	8128	7974	7825	7681	7542	7407	7276	7149	7026	42
8451	8285	8125	7971	7823	7679	7540	7405	7274	7147	7024	43
8448	8282	8123	7969	7820	7677	7538	7403	7272	7145	7022	44
8445	8279	8120	7966	7818	7674	7535	7401	7270	7143	7020	45
8442	8277	8117	7964	7815	7672	7533	7398	7268	7141	7018	46
8439	8274	8115	7961	7813	7670	7531	7396	7266	7139	7016	47
8437	8271	8112	7959	7811	7667	7528	7394	7264	7137	7014	48
8434	8269	8110	7956	7808	7665	7526	7392	7261	7135	7012	49
8431	8266	8107	7954	7806	7663	7524	7390	7259	7133	7010	50
8428	8263	8104	7951	7803	7660	7522	7387	7257	7131	7008	51
8425	8261	8102	7949	7801	7658	7519	7385	7255	7129	7006	52
8423	8258	8099	7946	7798	7655	7517	7383	7253	7127	7004	53
8420	8255	8097	7944	7796	7653	7515	7381	7251	7124	7002	54
8417	8253	8094	7941	7794	7651	7513	7379	7249	7122	7000	55
8414	8250	8091	7939	7791	7648	7510	7376	7246	7120	6998	56
8411	8247	8089	7936	7789	7646	7508	7374	7244	7118	6996	57
8409	8244	8086	7934	7786	7644	7506	7372	7242	7116	6994	58
8406	8242	8084	7931	7784	7641	7503	7370	7240	7114	6992	59
25'	26'	27'	28'	29'	30'	31'	32'	33'	34'	35'	Seconds
0 HOUR, or 0 DEGREE.											Seconds

TABLE XXIX.

PROPORTIONAL LOGARITHMS

Seconds		0 HOUR or 0 DEGREE.																Seconds																																																																																																																					
		36'	37'	38'	39'	40'	41'	42'	43'	44'	45'	46'	47'																																																																																																																										
0	1	6990	6871	6755	6642	6532	6425	6320	6218	6118	6021	5925	5832	5742	5654	5568	5484	5401	5319	5238	5158	5078	5000	4922	4845	4769	4694	4620	4547	4475	4404	4333	4263	4194	4126	4058	3991	3925	3860	3796	3733	3671	3610	3550	3490	3432	3375	3319	3263	3208	3154	3100	3047	2995	2944	2893	2843	2793	2744	2695	2647	2599	2552	2505	2459	2413	2368	2323	2279	2235	2191	2148	2105	2063	2021	1980	1939	1898	1858	1818	1778	1739	1699	1660	1621	1582	1544	1506	1468	1430	1393	1356	1319	1282	1246	1210	1174	1139	1103	1068	1033	998	964	930	896	863	830	797	765	733	701	669	637	606	575	544	513	483	452	422	392	362	332	302	272	242	212	182	152	122	92	62	32	2	0
1	1	6988	6869	6753	6640	6530	6423	6319	6216	6117	6019	5924	5830	5738	5647	5557	5468	5379	5291	5204	5118	5033	4948	4864	4781	4698	4616	4534	4453	4372	4292	4212	4133	4054	3975	3897	3819	3742	3665	3589	3513	3438	3363	3288	3214	3140	3067	2994	2922	2850	2779	2708	2637	2567	2497	2428	2359	2290	2222	2154	2086	2019	1952	1885	1819	1753	1687	1622	1557	1492	1428	1364	1300	1237	1174	1111	1049	987	925	864	803	742	682	622	562	502	442	382	322	262	202	142	82	22	0																																								
2	1	6986	6867	6751	6638	6528	6421	6317	6214	6115	6017	5922	5828	5736	5645	5555	5466	5377	5289	5202	5116	5031	4946	4862	4779	4696	4614	4532	4451	4370	4290	4210	4131	4052	3973	3895	3817	3740	3663	3587	3511	3436	3361	3286	3212	3138	3064	2991	2918	2845	2773	2701	2629	2557	2486	2415	2344	2273	2203	2133	2063	1993	1924	1855	1786	1717	1648	1579	1510	1441	1372	1304	1235	1167	1098	1030	962	894	826	759	691	624	557	490	423	356	289	222	155	88	22	0																																											
3	1	6984	6865	6749	6637	6527	6420	6315	6213	6113	6016	5921	5827	5735	5644	5554	5465	5376	5288	5201	5115	5030	4945	4861	4778	4695	4613	4531	4450	4369	4289	4209	4129	4050	3971	3893	3815	3738	3661	3585	3509	3434	3359	3284	3210	3136	3062	2989	2916	2843	2771	2699	2627	2555	2484	2413	2342	2271	2201	2131	2061	1991	1922	1853	1784	1715	1646	1577	1508	1439	1370	1301	1232	1163	1094	1025	956	887	818	749	680	611	542	473	404	335	266	197	128	60	22	0																																											
4	1	6982	6863	6747	6635	6525	6418	6313	6211	6112	6014	5919	5826	5734	5643	5553	5464	5375	5287	5200	5114	5029	4944	4860	4777	4694	4612	4530	4449	4368	4288																																																																																																								

PROPORTIONAL LOGARITHMS.

0 HOUR or 0 DEGREE.											Seconds
48'	49'	50'	51'	52'	53'	54'	55'	56'	57'	58'	
5740	5651	5563	5477	5393	5310	5229	5149	5071	4994	4918	4844
5739	5649	5562	5476	5391	5309	5227	5148	5070	4993	4917	4843
5737	5648	5560	5474	5390	5307	5226	5146	5068	4991	4916	4842
5736	5646	5559	5473	5389	5306	5225	5145	5067	4990	4915	4841
5734	5645	5557	5471	5387	5305	5223	5144	5066	4989	4913	4839
5733	5643	5556	5470	5386	5303	5222	5143	5064	4988	4912	4838
5731	5642	5554	5469	5384	5302	5221	5141	5063	4986	4911	4837
5730	5640	5553	5467	5383	5300	5219	5140	5062	4985	4910	4836
5728	5639	5551	5466	5382	5299	5218	5139	5061	4984	4908	4834
5727	5637	5550	5464	5380	5298	5217	5137	5059	4983	4907	4833
5725	5636	5549	5463	5379	5296	5215	5136	5058	4981	4906	4832
5724	5635	5547	5461	5377	5295	5214	5135	5057	4980	4905	4831
5722	5633	5546	5460	5376	5294	5213	5133	5055	4979	4903	4830
5721	5632	5544	5459	5375	5292	5211	5132	5054	4977	4902	4828
5719	5630	5543	5457	5373	5291	5210	5131	5053	4976	4901	4827
5718	5629	5541	5456	5372	5290	5209	5129	5051	4975	4900	4826
5716	5627	5540	5454	5370	5288	5207	5128	5050	4974	4899	4825
5715	5626	5538	5453	5369	5287	5206	5127	5049	4973	4897	4823
5713	5624	5537	5452	5368	5285	5205	5125	5048	4971	4896	4822
5712	5623	5536	5450	5366	5284	5203	5124	5046	4970	4895	4821
5710	5621	5534	5449	5365	5283	5202	5123	5045	4969	4894	4820
5709	5620	5533	5447	5364	5281	5201	5122	5044	4967	4892	4819
5707	5618	5531	5446	5362	5280	5199	5120	5043	4966	4891	4817
5706	5617	5530	5445	5361	5279	5198	5119	5041	4965	4890	4816
5704	5615	5528	5443	5359	5277	5197	5118	5040	4964	4889	4815
5703	5614	5527	5442	5358	5276	5195	5116	5039	4962	4887	4814
5701	5613	5526	5440	5357	5275	5194	5115	5037	4961	4886	4812
5700	5611	5524	5439	5355	5273	5193	5114	5036	4960	4885	4811
5698	5610	5522	5437	5354	5272	5191	5112	5035	4959	4884	4810
5697	5608	5521	5436	5353	5271	5190	5111	5034	4957	4882	4809
5695	5607	5520	5435	5351	5269	5189	5110	5032	4956	4881	4808
5694	5605	5518	5433	5350	5268	5187	5108	5031	4955	4880	4806
5692	5604	5517	5432	5348	5266	5186	5107	5030	4954	4879	4805
5691	5602	5516	5430	5347	5265	5185	5106	5028	4952	4877	4804
5689	5601	5514	5429	5346	5264	5183	5105	5027	4951	4876	4803
5688	5599	5513	5428	5344	5262	5182	5103	5026	4950	4875	4801
5686	5598	5511	5426	5343	5261	5181	5102	5025	4949	4874	4800
5685	5596	5510	5425	5341	5260	5179	5101	5023	4947	4873	4799
5683	5595	5508	5423	5340	5258	5178	5099	5022	4946	4871	4798
5682	5594	5507	5422	5339	5257	5177	5098	5021	4945	4870	4797
5680	5592	5506	5421	5337	5256	5175	5097	5019	4943	4869	4795
5679	5591	5504	5419	5336	5254	5174	5095	5018	4942	4868	4794
5677	5589	5503	5418	5335	5253	5173	5094	5017	4941	4866	4793
5676	5588	5501	5416	5333	5252	5172	5093	5016	4940	4865	4792
5674	5586	5500	5415	5332	5250	5170	5092	5014	4938	4864	4791
5673	5585	5498	5414	5331	5249	5169	5090	5013	4937	4863	4789
5671	5583	5497	5412	5329	5248	5168	5089	5012	4936	4861	4788
5670	5582	5496	5411	5328	5246	5166	5088	5011	4935	4860	4787
5669	5580	5494	5409	5326	5245	5165	5086	5009	4933	4859	4786
5667	5579	5493	5408	5325	5244	5164	5085	5008	4932	4858	4785
5666	5578	5491	5407	5324	5242	5162	5084	5007	4931	4856	4783
5664	5576	5490	5405	5322	5241	5161	5082	5005	4930	4855	4782
5663	5575	5488	5404	5321	5240	5160	5081	5004	4928	4854	4781
5661	5573	5487	5402	5320	5238	5158	5080	5003	4927	4853	4780
5660	5572	5486	5401	5318	5237	5157	5079	5002	4926	4852	4778
5658	5570	5484	5400	5317	5235	5156	5077	5000	4925	4850	4777
5657	5569	5483	5398	5315	5234	5154	5076	4999	4923	4849	4776
5655	5567	5481	5397	5314	5233	5153	5075	4998	4922	4848	4775
5654	5566	5480	5395	5313	5231	5152	5073	4997	4921	4847	4774
5652	5564	5478	5394	5311	5230	5150	5072	4995	4920	4845	4772
48'	49'	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'
0 HOUR or 0 DEGREE.											Seconds

TABLE XXIX.

PROPORTIONAL LOGARITHMS.

Seconds		1 HOUR, or 1 DEGREE.											Seconds	
		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'			11'
0	4771	4699	4629	4559	4491	4424	4357	4292	4228	4164	4102	4040	0	
1	4770	4698	4628	4558	4490	4422	4356	4291	4227	4163	4101	4039	1	
2	4769	4697	4626	4557	4489	4421	4355	4290	4226	4162	4100	4038	2	
3	4768	4696	4625	4556	4488	4420	4354	4289	4224	4161	4099	4037	3	
4	4766	4695	4624	4555	4486	4419	4353	4288	4223	4160	4098	4036	4	
5	4765	4693	4623	4554	4485	4418	4352	4287	4222	4159	4097	4035	5	
6	4764	4692	4622	4553	4484	4417	4351	4286	4221	4158	4096	4034	6	
7	4763	4691	4621	4551	4483	4416	4350	4284	4220	4157	4095	4033	7	
8	4762	4690	4619	4550	4482	4415	4349	4283	4219	4156	4093	4032	8	
9	4760	4689	4618	4549	4481	4414	4347	4282	4218	4155	4092	4031	9	
10	4759	4688	4617	4548	4480	4412	4346	4281	4217	4154	4091	4030	10	
11	4758	4686	4616	4547	4479	4411	4345	4280	4216	4153	4090	4029	11	
12	4757	4685	4615	4546	4477	4410	4344	4279	4215	4152	4089	4028	12	
13	4756	4684	4614	4544	4476	4409	4343	4278	4214	4151	4088	4027	13	
14	4754	4683	4612	4543	4475	4408	4342	4277	4213	4150	4087	4026	14	
15	4753	4682	4611	4542	4474	4407	4341	4276	4212	4149	4086	4025	15	
16	4752	4680	4610	4541	4473	4406	4340	4275	4211	4147	4085	4024	16	
17	4751	4679	4609	4540	4472	4405	4339	4274	4210	4146	4084	4023	17	
18	4750	4678	4608	4539	4471	4404	4338	4273	4209	4145	4083	4022	18	
19	4748	4677	4607	4538	4469	4402	4336	4271	4207	4144	4082	4021	19	
20	4747	4676	4606	4536	4468	4401	4335	4270	4206	4143	4081	4020	20	
21	4746	4675	4604	4535	4467	4400	4334	4269	4205	4142	4080	4019	21	
22	4745	4673	4603	4534	4466	4399	4333	4268	4204	4141	4079	4018	22	
23	4744	4672	4602	4533	4465	4398	4332	4267	4203	4140	4078	4017	23	
24	4742	4671	4601	4532	4464	4397	4331	4266	4202	4139	4077	4016	24	
25	4741	4670	4600	4531	4463	4396	4330	4265	4201	4138	4076	4015	25	
26	4740	4669	4599	4530	4462	4395	4329	4264	4200	4137	4075	4014	26	
27	4739	4668	4597	4528	4460	4394	4328	4263	4199	4136	4074	4013	27	
28	4738	4666	4596	4527	4459	4393	4327	4262	4198	4135	4073	4012	28	
29	4736	4665	4595	4526	4458	4391	4326	4261	4197	4134	4072	4011	29	
30	4735	4664	4594	4525	4457	4390	4325	4260	4196	4133	4071	4010	30	
31	4734	4663	4593	4524	4456	4389	4323	4259	4195	4132	4070	4009	31	
32	4733	4662	4592	4523	4455	4388	4322	4258	4194	4131	4069	4008	32	
33	4732	4660	4590	4522	4454	4387	4321	4256	4193	4130	4068	4007	33	
34	4730	4659	4589	4520	4453	4386	4320	4255	4192	4129	4067	4006	34	
35	4729	4658	4588	4519	4452	4385	4319	4254	4191	4128	4066	4005	35	
36	4728	4657	4587	4518	4450	4384	4318	4253	4189	4127	4065	4004	36	
37	4727	4656	4586	4517	4449	4383	4317	4252	4188	4126	4064	4003	37	
38	4726	4655	4585	4516	4448	4381	4316	4251	4187	4125	4063	4002	38	
39	4724	4653	4584	4515	4447	4380	4315	4250	4186	4124	4062	4001	39	
40	4723	4652	4582	4514	4446	4379	4314	4249	4185	4123	4061	4000	40	
41	4722	4651	4581	4512	4445	4378	4313	4248	4184	4121	4060	3999	41	
42	4721	4650	4580	4511	4444	4377	4311	4247	4183	4120	4059	3998	42	
43	4720	4649	4579	4510	4443	4376	4310	4246	4182	4119	4058	3997	43	
44	4718	4648	4578	4509	4441	4375	4309	4245	4181	4118	4056	3996	44	
45	4717	4646	4577	4508	4440	4374	4308	4244	4180	4117	4055	3995	45	
46	4716	4645	4575	4507	4439	4373	4307	4243	4179	4116	4054	3993	46	
47	4715	4644	4574	4506	4438	4372	4306	4241	4178	4115	4053	3992	47	
48	4714	4643	4573	4505	4437	4370	4305	4240	4177	4114	4052	3991	48	
49	4712	4642	4572	4503	4436	4369	4304	4239	4176	4113	4051	3990	49	
50	4711	4640	4571	4502	4435	4368	4303	4238	4175	4112	4050	3989	50	
51	4710	4639	4570	4501	4434	4367	4302	4237	4174	4111	4049	3988	51	
52	4709	4638	4569	4500	4433	4366	4301	4236	4173	4110	4048	3987	52	
53	4708	4637	4567	4499	4431	4365	4300	4235	4172	4109	4047	3986	53	
54	4707	4636	4566	4498	4430	4364	4298	4234	4171	4108	4046	3985	54	
55	4705	4635	4565	4497	4429	4363	4297	4233	4169	4107	4045	3984	55	
56	4704	4633	4564	4495	4428	4362	4296	4232	4168	4106	4044	3983	56	
57	4703	4632	4563	4494	4427	4361	4295	4231	4167	4105	4043	3982	57	
58	4702	4631	4562	4493	4426	4359	4294	4230	4166	4104	4042	3981	58	
59	4701	4630	4560	4492	4425	4358	4293	4229	4165	4103	4041	3980	59	
Seconds		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	Seconds
1 HOUR, or 1 DEGREE.														

PROPORTIONAL LOGARITHMS.

1 HOUR, or 1 DEGREE.												Seconds
12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	
3979	3919	3860	3802	3745	3688	3632	3576	3522	3468	3415	3362	0
3978	3919	3859	3801	3744	3687	3631	3576	3521	3467	3414	3361	1
3977	3918	3858	3800	3743	3686	3630	3575	3520	3466	3413	3360	2
3976	3917	3857	3799	3742	3685	3629	3574	3519	3465	3412	3359	3
3975	3916	3856	3798	3741	3684	3628	3573	3518	3464	3411	3358	4
3974	3915	3856	3797	3740	3683	3627	3572	3517	3463	3410	3358	5
3973	3914	3855	3796	3739	3682	3626	3571	3516	3463	3409	3357	6
3972	3913	3854	3795	3738	3681	3625	3570	3515	3462	3408	3356	7
3971	3912	3853	3794	3737	3680	3624	3569	3514	3461	3408	3355	8
3970	3911	3852	3793	3736	3679	3623	3568	3513	3460	3407	3354	9
3969	3910	3851	3792	3735	3678	3623	3567	3513	3459	3406	3353	10
3968	3909	3850	3792	3734	3677	3622	3566	3512	3458	3405	3352	11
3967	3908	3849	3791	3733	3677	3621	3565	3511	3457	3404	3351	12
3966	3907	3848	3790	3732	3676	3620	3565	3510	3456	3403	3351	13
3965	3906	3847	3789	3731	3675	3619	3564	3509	3455	3402	3350	14
3964	3905	3846	3788	3730	3674	3618	3563	3508	3454	3401	3349	15
3963	3904	3845	3787	3729	3673	3617	3562	3507	3454	3400	3348	16
3962	3903	3844	3786	3728	3672	3616	3561	3506	3453	3400	3347	17
3961	3902	3843	3785	3727	3671	3615	3560	3506	3452	3399	3346	18
3960	3901	3842	3784	3727	3670	3614	3559	3505	3451	3398	3345	19
3959	3900	3841	3783	3726	3669	3613	3558	3504	3450	3397	3345	20
3958	3899	3840	3782	3725	3668	3612	3557	3503	3449	3396	3344	21
3957	3898	3839	3781	3724	3667	3611	3556	3502	3448	3395	3343	22
3956	3897	3838	3780	3723	3666	3610	3555	3501	3447	3394	3342	23
3955	3896	3837	3779	3722	3665	3610	3555	3500	3446	3393	3341	24
3954	3895	3836	3778	3721	3664	3609	3554	3499	3446	3393	3340	25
3953	3894	3835	3777	3720	3663	3608	3553	3498	3445	3392	3339	26
3952	3893	3834	3776	3719	3663	3607	3552	3497	3444	3391	3338	27
3951	3892	3833	3775	3718	3662	3606	3551	3497	3443	3390	3338	28
3950	3891	3832	3774	3717	3661	3605	3550	3496	3442	3389	3337	29
3949	3890	3831	3773	3716	3660	3604	3549	3495	3441	3388	3336	30
3948	3889	3830	3772	3715	3659	3603	3548	3494	3440	3387	3335	31
3947	3888	3829	3771	3714	3658	3602	3547	3493	3439	3386	3334	32
3946	3887	3828	3770	3713	3657	3601	3546	3492	3438	3386	3333	33
3945	3886	3827	3769	3712	3656	3600	3545	3491	3438	3385	3332	34
3944	3885	3826	3768	3711	3655	3599	3545	3490	3437	3384	3332	35
3943	3884	3825	3768	3710	3654	3598	3544	3489	3436	3383	3331	36
3942	3883	3824	3767	3709	3653	3598	3543	3488	3435	3382	3330	37
3941	3882	3823	3766	3709	3652	3597	3542	3488	3434	3381	3329	38
3940	3881	3822	3765	3708	3651	3596	3541	3487	3433	3380	3328	39
3939	3880	3821	3764	3707	3650	3595	3540	3486	3432	3379	3327	40
3938	3879	3820	3763	3706	3649	3594	3539	3485	3431	3379	3326	41
3937	3878	3820	3762	3705	3649	3593	3538	3484	3431	3378	3325	42
3936	3877	3819	3761	3704	3648	3592	3537	3483	3430	3377	3325	43
3935	3876	3818	3760	3703	3647	3591	3536	3482	3429	3376	3324	44
3934	3875	3817	3759	3702	3646	3590	3535	3481	3428	3375	3323	45
3933	3874	3816	3758	3701	3645	3589	3535	3480	3427	3374	3322	46
3932	3873	3815	3757	3700	3644	3588	3534	3480	3426	3373	3321	47
3931	3872	3814	3756	3699	3643	3587	3533	3479	3425	3372	3320	48
3930	3871	3813	3755	3698	3642	3587	3532	3478	3424	3372	3319	49
3929	3870	3812	3754	3697	3641	3586	3531	3477	3423	3371	3319	50
3928	3869	3811	3753	3696	3640	3585	3530	3476	3423	3370	3318	51
3927	3868	3810	3752	3695	3639	3584	3529	3475	3422	3369	3317	52
3926	3867	3809	3751	3694	3638	3583	3528	3474	3421	3368	3316	53
3925	3866	3808	3750	3693	3637	3582	3527	3473	3420	3367	3315	54
3924	3865	3807	3749	3693	3636	3581	3526	3472	3419	3366	3314	55
3923	3864	3806	3748	3692	3635	3580	3525	3471	3418	3365	3313	56
3922	3863	3805	3747	3691	3635	3579	3525	3471	3417	3365	3313	57
3921	3862	3804	3746	3690	3634	3578	3524	3470	3416	3364	3312	58
3920	3861	3803	3746	3689	3633	3577	3523	3469	3415	3363	3311	59
12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	Seconds
1 HOUR, or 1 DEGREE.												

1 HOUR, or 1 DEGREE.

PROPORTIONAL LOGARITHMS.

		1 HOUR, or 1 DEGREE.																
Seconds		24'	25'	26'	27'	28'	29'	30'	31'	32'	33'	34'	35'		Seconds			
0		3310	3259	3208	3158	3108	3059	3010	2962	2915	2868	2821	2775		0			
1		3309	3258	3207	3157	3107	3058	3009	2962	2914	2867	2821	2775		1			
2		3308	3257	3206	3156	3106	3057	3009	2961	2913	2866	2820	2774		2			
3		3307	3256	3205	3155	3105	3056	3008	2960	2912	2866	2819	2773		3			
4		3306	3255	3204	3154	3105	3056	3007	2959	2912	2865	2818	2772		4			
5		3306	3254	3204	3153	3104	3055	3006	2958	2911	2864	2818	2772		5			
6		3305	3253	3203	3153	3103	3054	3005	2958	2910	2863	2817	2771		6			
7		3304	3253	3202	3152	3102	3053	3005	2957	2909	2862	2816	2770		7			
8		3303	3252	3201	3151	3101	3052	3004	2956	2909	2862	2815	2769		8			
9		3302	3251	3200	3150	3101	3052	3003	2955	2908	2861	2815	2769		9			
10		3301	3250	3199	3149	3100	3051	3002	2954	2907	2860	2814	2768		10			
11		3300	3249	3198	3148	3099	3050	3001	2954	2906	2859	2813	2767		11			
12		3300	3248	3198	3148	3098	3049	3001	2953	2905	2859	2812	2766		12			
13		3299	3247	3197	3147	3097	3048	3000	2952	2905	2858	2811	2766		13			
14		3298	3247	3196	3146	3096	3047	2999	2951	2904	2857	2811	2765		14			
15		3297	3246	3195	3145	3096	3047	2998	2950	2903	2856	2810	2764		15			
16		3296	3245	3194	3144	3095	3046	2997	2950	2902	2855	2809	2763		16			
17		3295	3244	3193	3143	3094	3045	2997	2949	2901	2855	2808	2762		17			
18		3294	3243	3193	3143	3093	3044	2996	2948	2901	2854	2808	2762		18			
19		3294	3242	3192	3142	3092	3043	2995	2947	2900	2853	2807	2761		19			
20		3293	3242	3191	3141	3091	3043	2994	2946	2899	2852	2806	2760		20			
21		3292	3241	3190	3140	3091	3042	2993	2946	2898	2852	2805	2760		21			
22		3291	3240	3189	3139	3090	3041	2993	2945	2898	2851	2805	2759		22			
23		3290	3239	3188	3138	3089	3040	2992	2944	2897	2850	2804	2758		23			
24		3289	3238	3188	3138	3088	3039	2991	2943	2896	2849	2803	2757		24			
25		3288	3237	3187	3137	3087	3039	2990	2942	2895	2848	2802	2756		25			
26		3288	3236	3186	3136	3087	3038	2989	2942	2894	2848	2801	2756		26			
27		3287	3236	3185	3135	3086	3037	2989	2941	2894	2847	2801	2755		27			
28		3286	3235	3184	3134	3085	3036	2988	2940	2893	2846	2800	2754		28			
29		3285	3234	3183	3133	3084	3035	2987	2939	2892	2845	2799	2753		29			
30		3284	3233	3183	3133	3083	3034	2986	2939	2891	2845	2798	2753		30			
31		3283	3232	3182	3132	3082	3034	2985	2938	2891	2844	2798	2752		31			
32		3282	3231	3181	3131	3082	3033	2985	2937	2890	2843	2797	2751		32			
33		3282	3231	3180	3130	3081	3032	2984	2936	2889	2842	2796	2750		33			
34		3281	3230	3179	3129	3080	3031	2983	2935	2888	2842	2795	2750		34			
35		3280	3229	3178	3129	3079	3030	2982	2935	2887	2841	2795	2749		35			
36		3279	3228	3178	3128	3078	3030	2981	2934	2887	2840	2794	2748		36			
37		3278	3227	3177	3127	3078	3029	2981	2933	2886	2839	2793	2747		37			
38		3277	3226	3176	3126	3077	3028	2980	2932	2885	2838	2792	2747		38			
39		3276	3225	3175	3125	3076	3027	2979	2931	2884	2838	2792	2746		39			
40		3276	3225	3174	3124	3075	3026	2978	2931	2883	2837	2791	2745		40			
41		3275	3224	3173	3124	3074	3026	2977	2930	2883	2836	2790	2744		41			
42		3274	3223	3173	3123	3073	3025	2977	2929	2882	2835	2789	2743		42			
43		3273	3222	3172	3122	3073	3024	2976	2928	2881	2835	2788	2743		43			
44		3272	3221	3171	3121	3072	3023	2975	2927	2880	2834	2788	2742		44			
45		3271	3220	3170	3120	3071	3022	2974	2927	2880	2833	2787	2741		45			
46		3270	3220	3169	3119	3070	3022	2973	2926	2879	2832	2786	2741		46			
47		3270	3219	3168	3119	3069	3021	2973	2925	2878	2831	2785	2740		47			
48		3269	3218	3168	3118	3069	3020	2972	2924	2877	2831	2785	2739		48			
49		3268	3217	3167	3117	3068	3019	2971	2924	2876	2830	2784	2738		49			
50		3267	3216	3166	3116	3067	3018	2970	2923	2876	2829	2783	2737		50			
51		3266	3215	3165	3115	3066	3018	2969	2922	2875	2828	2782	2736		51			
52		3265	3214	3164	3114	3065	3017	2969	2921	2874	2828	2782	2735		52			
53		3265	3214	3163	3114	3065	3016	2968	2920	2873	2827	2781	2735		53			
54		3264	3213	3163	3113	3064	3015	2967	2920	2873	2826	2780	2734		54			
55		3263	3212	3162	3112	3063	3014	2966	2919	2872	2825	2779	2733		55			
56		3262	3211	3161	3111	3062	3014	2965	2918	2871	2825	2779	2733		56			
57		3261	3210	3160	3110	3061	3013	2965	2917	2870	2824	2778	2732		57			
58		3260	3209	3159	3110	3060	3012	2964	2916	2869	2823	2777	2731		58			
59		3259	3209	3158	3109	3060	3011	2963	2916	2869	2822	2776	2731		59			
Seconds		24'	25'	26'	27'	28'	29'	30'	31'	32'	33'	34'	35'		Seconds			
1 HOUR, or 1 DEGREE.																		

1 HOUR, or 1 DEGREE.

PROPORTIONAL LOGARITHMS.

Seconds	1 HOUR, or 1 DEGREE.												Seconds
	36'	37'	38'	39'	40'	41'	42'	43'	44'	45'	46'	47'	
0	2730	2685	2640	2596	2553	2510	2467	2424	2382	2341	2300	2259	0
1	2729	2684	2640	2596	2552	2509	2466	2424	2382	2340	2299	2258	1
2	2729	2684	2639	2595	2551	2508	2465	2423	2381	2339	2298	2257	2
3	2728	2683	2638	2594	2551	2507	2465	2422	2380	2339	2298	2257	3
4	2727	2682	2638	2593	2550	2507	2464	2422	2380	2338	2297	2256	4
5	2726	2681	2637	2593	2549	2506	2463	2421	2379	2337	2296	2255	5
6	2725	2681	2636	2592	2548	2505	2462	2420	2378	2337	2296	2255	6
7	2725	2680	2635	2591	2548	2504	2462	2419	2378	2336	2295	2254	7
8	2724	2679	2635	2591	2547	2504	2461	2419	2377	2335	2294	2253	8
9	2723	2678	2634	2590	2546	2503	2460	2418	2376	2335	2294	2253	9
10	2722	2678	2633	2589	2545	2502	2460	2417	2375	2334	2293	2252	10
11	2722	2677	2632	2588	2545	2502	2459	2417	2375	2333	2292	2251	11
12	2721	2676	2632	2588	2544	2501	2458	2416	2374	2333	2291	2251	12
13	2720	2675	2631	2587	2543	2500	2458	2415	2373	2332	2291	2250	13
14	2719	2675	2630	2586	2543	2499	2457	2415	2373	2331	2290	2249	14
15	2719	2674	2629	2585	2542	2499	2456	2414	2372	2331	2289	2249	15
16	2718	2673	2629	2585	2541	2498	2455	2413	2371	2330	2289	2248	16
17	2717	2672	2628	2584	2540	2497	2455	2412	2371	2329	2288	2247	17
18	2716	2672	2627	2583	2540	2497	2454	2412	2370	2328	2287	2247	18
19	2716	2671	2626	2583	2539	2496	2453	2411	2369	2328	2287	2246	19
20	2715	2670	2626	2582	2538	2495	2453	2410	2368	2327	2286	2245	20
21	2714	2669	2625	2581	2538	2494	2452	2410	2368	2326	2285	2245	21
22	2713	2669	2624	2580	2537	2494	2451	2409	2367	2326	2285	2244	22
23	2713	2668	2624	2580	2536	2493	2450	2408	2366	2325	2284	2243	23
24	2712	2667	2623	2579	2535	2492	2450	2408	2366	2324	2283	2243	24
25	2711	2666	2622	2578	2535	2492	2449	2407	2365	2324	2283	2242	25
26	2710	2666	2621	2577	2534	2491	2448	2406	2364	2323	2282	2241	26
27	2710	2665	2621	2577	2533	2490	2448	2405	2364	2322	2281	2241	27
28	2709	2664	2620	2576	2533	2489	2447	2405	2363	2322	2281	2240	28
29	2708	2663	2619	2575	2532	2489	2446	2404	2362	2321	2280	2239	29
30	2707	2663	2618	2574	2531	2488	2445	2403	2362	2320	2279	2239	30
31	2707	2662	2618	2574	2530	2487	2445	2403	2361	2320	2279	2238	31
32	2706	2661	2617	2573	2530	2487	2444	2402	2360	2319	2278	2237	32
33	2705	2660	2616	2572	2529	2486	2443	2401	2359	2318	2277	2237	33
34	2704	2660	2615	2572	2528	2485	2443	2401	2359	2317	2277	2236	34
35	2704	2659	2615	2571	2527	2485	2442	2400	2358	2317	2276	2235	35
36	2703	2658	2614	2570	2527	2484	2441	2399	2357	2316	2275	2235	36
37	2702	2657	2613	2569	2526	2483	2441	2398	2357	2315	2274	2234	37
38	2701	2657	2612	2569	2525	2482	2440	2398	2356	2315	2274	2233	38
39	2701	2656	2612	2568	2525	2482	2439	2397	2355	2314	2273	2233	39
40	2700	2655	2611	2567	2524	2481	2438	2396	2355	2313	2272	2232	40
41	2699	2655	2610	2566	2523	2480	2438	2396	2354	2313	2272	2231	41
42	2698	2654	2610	2566	2522	2480	2437	2395	2353	2312	2271	2231	42
43	2698	2653	2609	2565	2522	2479	2436	2394	2353	2311	2270	2230	43
44	2697	2652	2608	2564	2521	2478	2436	2394	2352	2311	2270	2229	44
45	2696	2652	2607	2564	2520	2477	2435	2393	2351	2310	2269	2229	45
46	2695	2651	2607	2563	2520	2477	2434	2392	2350	2309	2268	2228	46
47	2695	2650	2606	2562	2519	2476	2433	2391	2350	2309	2268	2227	47
48	2694	2649	2605	2561	2518	2475	2433	2391	2349	2308	2267	2227	48
49	2693	2649	2604	2561	2517	2475	2432	2390	2348	2307	2266	2226	49
50	2692	2648	2604	2560	2517	2474	2431	2389	2348	2307	2266	2225	50
51	2692	2647	2603	2559	2516	2473	2431	2389	2347	2306	2265	2225	51
52	2691	2646	2602	2559	2515	2472	2430	2388	2346	2305	2264	2224	52
53	2690	2646	2601	2558	2515	2472	2429	2387	2346	2304	2264	2223	53
54	2689	2645	2601	2557	2514	2471	2429	2387	2345	2304	2263	2223	54
55	2689	2644	2600	2556	2513	2470	2428	2386	2344	2303	2262	2222	55
56	2688	2643	2599	2555	2512	2470	2427	2385	2344	2302	2262	2221	56
57	2687	2643	2599	2555	2512	2469	2426	2384	2343	2302	2261	2220	57
58	2687	2642	2598	2554	2511	2468	2426	2384	2342	2301	2260	2220	58
59	2686	2641	2597	2553	2510	2467	2425	2383	2342	2300	2260	2219	59
Seconds	36'	37'	38'	39'	40'	41'	42'	43'	44'	45'	46'	47'	Seconds

PROPORTIONAL LOGARITHMS.

Seconds		1 HOUR, or 1 DEGREE.																Seconds													
		48'	49'	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'																		
0	2218	2178	2139	2099	2061	2022	1984	1946	1908	1871	1834	1797	1760	0	1	2	3	4	5												
1	2218	2178	2138	2099	2060	2021	1983	1945	1908	1870	1833	1797	1760	1	2	3	4	5	6												
2	2217	2177	2137	2098	2059	2021	1982	1944	1907	1870	1833	1796	1760	2	3	4	5	6	7												
3	2216	2176	2137	2098	2059	2020	1982	1944	1906	1869	1832	1795	1759	3	4	5	6	7	8												
4	2216	2176	2136	2097	2058	2019	1981	1943	1906	1868	1831	1795	1759	4	5	6	7	8	9												
5	2215	2175	2136	2096	2057	2019	1981	1943	1905	1868	1831	1794	1758	5	6	7	8	9	10												
6	2214	2174	2135	2096	2057	2018	1980	1942	1904	1867	1830	1794	1758	6	7	8	9	10	11												
7	2214	2174	2134	2095	2056	2017	1979	1941	1904	1867	1830	1793	1757	7	8	9	10	11	12												
8	2213	2173	2134	2094	2055	2017	1979	1941	1903	1866	1829	1792	1756	8	9	10	11	12	13												
9	2212	2172	2133	2094	2055	2016	1978	1940	1903	1865	1828	1792	1756	9	10	11	12	13	14												
10	2212	2172	2132	2093	2054	2016	1977	1939	1902	1865	1828	1791	1755	10	11	12	13	14	15												
11	2211	2171	2132	2092	2053	2015	1977	1939	1901	1864	1827	1791	1755	11	12	13	14	15	16												
12	2210	2170	2131	2092	2053	2014	1976	1938	1901	1863	1827	1790	1754	12	13	14	15	16	17												
13	2210	2170	2130	2091	2052	2014	1975	1938	1900	1863	1826	1789	1753	13	14	15	16	17	18												
14	2209	2169	2130	2090	2052	2013	1975	1937	1899	1862	1825	1788	1752	14	15	16	17	18	19												
15	2208	2169	2129	2090	2051	2012	1974	1936	1899	1862	1825	1788	1752	15	16	17	18	19	20												
16	2208	2168	2128	2089	2050	2012	1974	1936	1898	1861	1824	1787	1751	16	17	18	19	20	21												
17	2207	2167	2128	2088	2050	2011	1973	1935	1898	1860	1823	1787	1751	17	18	19	20	21	22												
18	2206	2167	2127	2088	2049	2010	1972	1934	1897	1860	1823	1786	1750	18	19	20	21	22	23												
19	2206	2166	2126	2087	2048	2010	1972	1934	1896	1859	1822	1786	1750	19	20	21	22	23	24												
20	2205	2165	2126	2086	2048	2009	1971	1933	1896	1859	1822	1785	1749	20	21	22	23	24	25												
21	2204	2165	2125	2086	2047	2009	1970	1933	1895	1858	1821	1785	1749	21	22	23	24	25	26												
22	2204	2164	2124	2085	2046	2008	1970	1932	1894	1857	1820	1784	1748	22	23	24	25	26	27												
23	2203	2163	2124	2085	2046	2007	1969	1931	1894	1857	1820	1783	1747	23	24	25	26	27	28												
24	2202	2163	2123	2084	2045	2007	1968	1931	1893	1856	1819	1783	1747	24	25	26	27	28	29												
25	2202	2162	2122	2083	2044	2006	1968	1930	1893	1855	1819	1782	1746	25	26	27	28	29	30												
26	2201	2161	2122	2083	2044	2005	1967	1929	1892	1855	1818	1781	1745	26	27	28	29	30	31												
27	2200	2161	2121	2082	2043	2005	1967	1929	1891	1854	1817	1781	1745	27	28	29	30	31	32												
28	2200	2160	2120	2081	2042	2004	1966	1928	1891	1854	1817	1780	1744	28	29	30	31	32	33												
29	2199	2159	2120	2081	2042	2003	1965	1928	1890	1853	1816	1780	1744	29	30	31	32	33	34												
30	2198	2159	2119	2080	2041	2003	1965	1927	1889	1852	1815	1779	1743	30	31	32	33	34	35												
31	2198	2158	2118	2079	2041	2002	1964	1926	1889	1852	1815	1778	1743	31	32	33	34	35	36												
32	2197	2157	2118	2079	2040	2001	1963	1926	1888	1851	1814	1778	1742	32	33	34	35	36	37												
33	2196	2157	2117	2078	2039	2001	1963	1925	1888	1850	1814	1777	1742	33	34	35	36	37	38												
34	2196	2156	2116	2077	2039	2000	1962	1924	1887	1850	1813	1777	1741	34	35	36	37	38	39												
35	2195	2155	2116	2077	2038	2000	1962	1924	1886	1849	1812	1776	1741	35	36	37	38	39	40												
36	2194	2155	2115	2076	2037	1999	1961	1923	1886	1849	1812	1775	1740	36	37	38	39	40	41												
37	2194	2154	2115	2075	2037	1998	1960	1923	1885	1848	1811	1775	1740	37	38	39	40	41	42												
38	2193	2153	2114	2075	2036	1998	1960	1922	1884	1847	1811	1774	1739	38	39	40	41	42	43												
39	2192	2153	2113	2074	2035	1997	1959	1921	1884	1847	1810	1774	1739	39	40	41	42	43	44												
40	2192	2152	2113	2073	2035	1996	1958	1921	1883	1846	1809	1773	1738	40	41	42	43	44	45												
41	2191	2151	2112	2073	2034	1996	1958	1920	1883	1846	1809	1772	1737	41	42	43	44	45	46												
42	2190	2151	2111	2072	2033	1995	1957	1919	1882	1845	1808	1772	1737	42	43	44	45	46	47												
43	2190	2150	2111	2072	2033	1994	1956	1919	1881	1844	1808	1771	1736	43	44	45	46	47	48												
44	2189	2149	2110	2071	2032	1994	1956	1918	1881	1844	1807	1771	1736	44	45	46	47	48	49												
45	2188	2149	2109	2070	2032	1993	1955	1918	1880	1843	1806	1770	1735	45	46	47	48	49	50												
46	2188	2148	2109	2070	2031	1993	1955	1917	1880	1843	1806	1769	1734	46	47	48	49	50	51												
47	2187	2147	2108	2069	2030	1992	1954	1916	1879	1842	1805	1768	1733	47	48	49	50	51	52												
48	2186	2147	2107	2068	2030	1991	1953	1916	1878	1841	1804	1767	1732	48	49	50	51	52	53												
49	2186	2146	2107	2068	2029	1991	1953	1915	1878	1841	1804	1767	1732	49	50	51	52	53	54												
50	2185	2145	2106	2067	2028	1990	1952	1914	1877	1840	1803	1767	1731	50	51	52	53	54	55												
51	2184	2145	2105	2066	2028	1989	1951	1914	1876	1839	1802	1766	1731	51	52	53	54	55	56												
52	2184	2144	2105	2066	2027	1989	1951	1913	1876	1839	1802	1766	1731	52	53	54	55	56	57												
53	2183	2143	2104	2065	2026	1988	1950	1913	1875	1838	1801	1765	1730	53	54	55	56	57	58												
54	2182	2143	2103	2064	2026	1987	1950	1912	1875	1838	1801	1765	1730	54	55	56	57	58	59												
55	2182	2142	2103	2064	2025	1987	1949	1911	1874	1837	1800	1764	1729	55	56	57	58	59	60												
56	2181	2141	2102	2063	2025	1986	1948	1911	1873	1836	1800	1763	1728	56	57	58	59	60	61												
57	2180	2141	2101	2062	2024	1986	1948	1910	1873	1836	1799	1763	1728	57	58	59	60	61	62												
58	2180	2140	2101	2062	2023	1985	1947	1909	1872	1835	1798	1762	1727	58	59	60	61	62	63												
59	2179	2139	2100	2061	2023	1984	1946	1909	1871	1835	1798	1762	1727	59	60	61	62	63	64												
Seconds		48'	49'	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'	Seconds		1 HOUR, or 1 DEGREE.														Seconds	

PROPORTIONAL LOGARITHMS.

Seconds		2 HOURS, or 2 DEGREES.											Seconds		
		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'			11'
0	1761	1725	1689	1654	1619	1584	1549	1515	1481	1447	1413	1380	0	0	
1	1760	1724	1689	1653	1618	1583	1548	1514	1480	1446	1412	1379	1	1	
2	1760	1724	1688	1652	1617	1582	1548	1514	1479	1446	1412	1379	2	2	
3	1759	1723	1687	1652	1617	1582	1547	1513	1479	1445	1412	1378	3	3	
4	1759	1722	1687	1651	1616	1581	1547	1512	1478	1445	1411	1378	4	4	
5	1758	1722	1686	1651	1616	1581	1546	1512	1478	1444	1411	1377	5	5	
6	1757	1721	1686	1650	1615	1580	1546	1511	1477	1443	1410	1377	6	6	
7	1757	1721	1685	1650	1614	1580	1545	1511	1477	1443	1409	1376	7	7	
8	1756	1720	1684	1649	1614	1579	1544	1510	1476	1442	1409	1376	8	8	
9	1755	1719	1684	1648	1613	1578	1544	1510	1476	1442	1408	1375	9	9	
10	1755	1719	1683	1648	1613	1578	1543	1509	1475	1441	1408	1374	10	10	
11	1754	1718	1683	1647	1612	1577	1543	1508	1474	1441	1407	1374	11	11	
12	1754	1718	1682	1647	1612	1577	1542	1508	1474	1440	1407	1373	12	12	
13	1753	1717	1681	1646	1611	1576	1542	1507	1473	1440	1406	1373	13	13	
14	1752	1717	1681	1645	1610	1576	1541	1507	1473	1439	1406	1372	14	14	
15	1752	1716	1680	1645	1610	1575	1540	1506	1472	1438	1405	1372	15	15	
16	1751	1715	1680	1644	1609	1574	1540	1506	1472	1438	1404	1371	16	16	
17	1751	1715	1679	1644	1609	1574	1539	1505	1471	1437	1404	1371	17	17	
18	1750	1714	1678	1643	1608	1573	1539	1504	1470	1437	1403	1370	18	18	
19	1749	1714	1678	1643	1607	1573	1538	1504	1470	1436	1403	1370	19	19	
20	1749	1713	1677	1642	1607	1572	1538	1503	1469	1436	1402	1369	20	20	
21	1748	1712	1677	1641	1606	1571	1537	1503	1469	1435	1402	1368	21	21	
22	1748	1712	1676	1641	1606	1571	1536	1502	1468	1435	1401	1368	22	22	
23	1747	1711	1676	1640	1605	1570	1536	1502	1468	1434	1401	1367	23	23	
24	1746	1711	1675	1640	1605	1570	1535	1501	1467	1433	1400	1367	24	24	
25	1746	1710	1675	1639	1604	1569	1535	1500	1467	1433	1399	1366	25	25	
26	1745	1709	1674	1638	1603	1569	1534	1500	1466	1432	1399	1366	26	26	
27	1745	1709	1673	1638	1603	1568	1534	1499	1465	1432	1398	1365	27	27	
28	1744	1708	1673	1637	1602	1567	1533	1499	1465	1431	1398	1365	28	28	
29	1743	1708	1672	1637	1602	1567	1532	1498	1464	1431	1397	1364	29	29	
30	1743	1707	1671	1636	1601	1566	1532	1498	1464	1430	1397	1363	30	30	
31	1742	1706	1671	1635	1600	1566	1531	1497	1463	1429	1396	1363	31	31	
32	1742	1706	1670	1635	1600	1565	1531	1496	1463	1429	1396	1362	32	32	
33	1741	1705	1670	1634	1599	1565	1530	1496	1462	1428	1395	1362	33	33	
34	1740	1705	1669	1634	1599	1564	1530	1495	1461	1428	1394	1361	34	34	
35	1740	1704	1668	1633	1598	1563	1529	1495	1461	1427	1394	1361	35	35	
36	1739	1703	1668	1633	1598	1563	1528	1494	1460	1427	1393	1360	36	36	
37	1739	1703	1667	1632	1597	1562	1528	1494	1460	1426	1393	1360	37	37	
38	1738	1702	1667	1631	1596	1562	1527	1493	1459	1426	1392	1359	38	38	
39	1737	1702	1666	1631	1596	1561	1527	1493	1459	1425	1392	1359	39	39	
40	1737	1701	1665	1630	1595	1561	1526	1492	1458	1424	1391	1358	40	40	
41	1736	1700	1665	1630	1595	1560	1526	1491	1458	1424	1391	1357	41	41	
42	1736	1700	1664	1629	1594	1559	1525	1491	1457	1423	1390	1357	42	42	
43	1735	1699	1664	1628	1593	1559	1524	1490	1456	1423	1389	1356	43	43	
44	1734	1699	1663	1628	1593	1558	1524	1490	1456	1422	1389	1356	44	44	
45	1734	1698	1663	1627	1592	1558	1523	1489	1455	1422	1388	1355	45	45	
46	1733	1697	1662	1627	1592	1557	1523	1489	1455	1421	1388	1355	46	46	
47	1733	1697	1661	1626	1591	1556	1522	1488	1454	1421	1387	1354	47	47	
48	1732	1696	1661	1626	1591	1556	1522	1487	1454	1420	1387	1354	48	48	
49	1731	1696	1660	1625	1590	1555	1521	1487	1453	1419	1386	1353	49	49	
50	1731	1695	1660	1624	1589	1555	1520	1486	1452	1419	1386	1352	50	50	
51	1730	1694	1659	1624	1589	1554	1520	1486	1452	1418	1385	1352	51	51	
52	1730	1694	1658	1623	1588	1554	1519	1485	1451	1418	1384	1351	52	52	
53	1729	1693	1658	1623	1588	1553	1519	1485	1451	1417	1384	1351	53	53	
54	1728	1693	1657	1622	1587	1552	1518	1484	1450	1417	1383	1350	54	54	
55	1728	1692	1657	1621	1587	1552	1518	1483	1450	1416	1383	1350	55	55	
56	1727	1692	1656	1621	1586	1551	1517	1483	1449	1416	1382	1349	56	56	
57	1727	1691	1655	1620	1585	1551	1516	1482	1449	1415	1382	1349	57	57	
58	1726	1690	1655	1620	1585	1550	1516	1482	1448	1414	1381	1348	58	58	
59	1725	1690	1654	1619	1584	1550	1515	1481	1447	1414	1381	1348	59	59	
Seconds		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	Seconds	
2 HOURS, or 2 DEGREES.															

2 HOURS, or 2 DEGREES.

PROPORTIONAL LOGARITHMS.

Seconds		2 HOURS, or 2 DEGREES.												Seconds	
		12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'		
0	1347	1314	1282	1249	1217	1186	1154	1123	1091	1061	1030	999	969	0	0
1	1346	1314	1281	1249	1217	1185	1153	1122	1091	1060	1029	999	969	1	1
2	1346	1313	1281	1248	1216	1184	1153	1122	1090	1060	1029	998	968	2	2
3	1345	1313	1280	1248	1216	1184	1152	1121	1090	1059	1028	998	968	3	3
4	1345	1312	1280	1247	1215	1183	1152	1120	1089	1058	1028	997	967	4	4
5	1344	1311	1279	1247	1215	1183	1151	1120	1089	1058	1027	997	967	5	5
6	1344	1311	1278	1246	1214	1182	1151	1119	1088	1057	1027	996	966	6	6
7	1343	1310	1278	1246	1214	1182	1150	1119	1088	1057	1026	996	966	7	7
8	1343	1310	1277	1245	1213	1181	1150	1118	1087	1056	1026	995	965	8	8
9	1342	1309	1277	1245	1213	1181	1149	1118	1087	1056	1025	995	965	9	9
10	1342	1309	1276	1244	1212	1180	1149	1117	1086	1055	1025	994	964	10	10
11	1341	1308	1276	1243	1211	1180	1148	1117	1086	1055	1024	994	964	11	11
12	1340	1308	1275	1243	1211	1179	1148	1116	1085	1054	1024	993	963	12	12
13	1340	1307	1275	1242	1210	1179	1147	1116	1085	1054	1023	993	963	13	13
14	1339	1307	1274	1242	1210	1178	1147	1115	1084	1053	1023	992	962	14	14
15	1339	1306	1274	1241	1209	1178	1146	1115	1084	1053	1022	992	962	15	15
16	1338	1306	1273	1241	1209	1177	1146	1114	1083	1052	1022	991	961	16	16
17	1338	1305	1273	1240	1208	1177	1145	1114	1083	1052	1021	991	961	17	17
18	1337	1304	1272	1240	1208	1176	1145	1113	1082	1051	1021	990	960	18	18
19	1337	1304	1271	1239	1207	1175	1144	1113	1082	1051	1020	990	960	19	19
20	1336	1303	1271	1239	1207	1175	1143	1112	1081	1050	1020	989	959	20	20
21	1335	1303	1270	1238	1206	1174	1143	1112	1081	1050	1019	989	959	21	21
22	1335	1302	1270	1238	1206	1174	1142	1111	1080	1049	1019	988	958	22	22
23	1334	1302	1269	1237	1205	1173	1142	1111	1080	1049	1018	988	958	23	23
24	1334	1301	1269	1237	1205	1173	1141	1110	1079	1048	1018	987	957	24	24
25	1333	1301	1268	1236	1204	1172	1141	1110	1079	1048	1017	987	957	25	25
26	1333	1300	1268	1235	1204	1172	1140	1109	1078	1047	1017	986	956	26	26
27	1332	1300	1267	1235	1203	1171	1140	1109	1078	1047	1016	986	956	27	27
28	1332	1299	1267	1234	1202	1171	1139	1108	1077	1046	1016	985	955	28	28
29	1331	1298	1266	1234	1202	1170	1139	1108	1076	1046	1015	985	955	29	29
30	1331	1298	1266	1233	1201	1170	1138	1107	1076	1045	1015	984	954	30	30
31	1330	1297	1265	1233	1201	1169	1138	1106	1075	1045	1014	984	954	31	31
32	1329	1297	1264	1232	1200	1169	1137	1106	1075	1044	1014	983	953	32	32
33	1329	1296	1264	1232	1200	1168	1137	1105	1074	1044	1013	983	953	33	33
34	1328	1296	1263	1231	1199	1168	1136	1105	1074	1043	1013	982	952	34	34
35	1328	1295	1263	1231	1199	1167	1136	1104	1073	1043	1012	982	952	35	35
36	1327	1295	1262	1230	1198	1167	1135	1104	1073	1042	1012	981	951	36	36
37	1327	1294	1262	1230	1198	1166	1135	1103	1072	1042	1011	981	951	37	37
38	1326	1294	1261	1229	1197	1165	1134	1103	1072	1041	1011	980	950	38	38
39	1326	1293	1261	1229	1197	1165	1134	1102	1071	1041	1010	980	950	39	39
40	1325	1292	1260	1228	1196	1164	1133	1102	1071	1040	1009	979	949	40	40
41	1325	1292	1260	1227	1196	1164	1132	1101	1070	1040	1009	979	949	41	41
42	1324	1291	1259	1227	1195	1163	1132	1101	1070	1039	1008	978	948	42	42
43	1323	1291	1259	1226	1195	1163	1131	1100	1069	1039	1008	978	948	43	43
44	1323	1290	1258	1226	1194	1162	1131	1100	1069	1038	1007	977	947	44	44
45	1322	1290	1257	1225	1193	1162	1130	1099	1068	1037	1007	977	947	45	45
46	1322	1289	1257	1225	1193	1161	1130	1099	1068	1037	1006	976	946	46	46
47	1321	1289	1256	1224	1192	1161	1129	1098	1067	1036	1006	976	946	47	47
48	1321	1288	1256	1224	1192	1160	1129	1098	1067	1036	1005	975	945	48	48
49	1320	1288	1255	1223	1191	1160	1128	1097	1066	1035	1005	975	945	49	49
50	1320	1287	1255	1223	1191	1159	1128	1097	1066	1035	1004	974	944	50	50
51	1319	1287	1254	1222	1190	1159	1127	1096	1065	1034	1004	974	944	51	51
52	1319	1286	1254	1222	1190	1158	1127	1096	1065	1034	1003	973	943	52	52
53	1318	1285	1253	1221	1189	1158	1126	1095	1064	1033	1003	973	943	53	53
54	1317	1285	1253	1221	1189	1157	1126	1095	1064	1033	1002	972	942	54	54
55	1317	1284	1252	1220	1188	1157	1125	1094	1063	1032	1002	972	942	55	55
56	1316	1284	1252	1219	1188	1156	1125	1094	1063	1032	1001	971	941	56	56
57	1316	1283	1251	1219	1187	1156	1124	1093	1062	1031	1001	971	941	57	57
58	1315	1283	1250	1218	1187	1155	1124	1092	1062	1031	1000	970	940	58	58
59	1315	1282	1250	1218	1186	1154	1123	1092	1061	1030	1000	970	940	59	59
Seconds		12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	Seconds	
		2 HOURS, or 2 DEGREES.													

PROPORTIONAL LOGARITHMS.

Seconds		2 HOURS, or 2 DEGREES.														Seconds	
		24'	25'	26'	27'	28'	29'	30'	31'	32'	33'	34'	35'				
0	0969	0939	0909	0880	0850	0821	0792	0763	0734	0706	0678	0649	0				
1	0969	0939	0909	0879	0850	0820	0791	0762	0734	0705	0677	0649	1				
2	0968	0938	0908	0879	0849	0820	0791	0762	0733	0705	0677	0648	2				
3	0968	0938	0908	0878	0849	0819	0790	0762	0733	0704	0676	0648	3				
4	0967	0937	0907	0878	0848	0819	0790	0761	0732	0704	0676	0648	4				
5	0967	0937	0907	0877	0848	0818	0789	0761	0732	0703	0675	0647	5				
6	0966	0936	0906	0877	0847	0818	0789	0760	0731	0703	0675	0647	6				
7	0966	0936	0906	0876	0847	0817	0788	0760	0731	0703	0674	0646	7				
8	0965	0935	0905	0876	0846	0817	0788	0759	0730	0702	0674	0646	8				
9	0965	0935	0905	0875	0846	0816	0787	0759	0730	0702	0673	0645	9				
10	0964	0934	0904	0875	0845	0816	0787	0758	0730	0701	0673	0645	10				
11	0964	0934	0904	0874	0845	0816	0787	0758	0729	0701	0672	0644	11				
12	0963	0933	0903	0874	0844	0815	0786	0757	0729	0700	0672	0644	12				
13	0963	0933	0903	0873	0844	0815	0786	0757	0728	0700	0671	0643	13				
14	0962	0932	0902	0873	0843	0814	0785	0756	0728	0699	0671	0643	14				
15	0962	0932	0902	0872	0843	0814	0785	0756	0727	0699	0670	0642	15				
16	0961	0931	0901	0872	0842	0813	0784	0755	0727	0698	0670	0642	16				
17	0961	0931	0901	0871	0842	0813	0784	0755	0726	0698	0670	0641	17				
18	0960	0930	0900	0871	0841	0812	0783	0754	0726	0697	0669	0641	18				
19	0960	0930	0900	0870	0841	0812	0783	0754	0725	0697	0669	0641	19				
20	0959	0929	0899	0870	0840	0811	0782	0753	0725	0696	0668	0640	20				
21	0959	0929	0899	0869	0840	0811	0782	0753	0724	0696	0668	0640	21				
22	0958	0928	0898	0869	0839	0810	0781	0752	0724	0695	0667	0639	22				
23	0958	0928	0898	0868	0839	0810	0781	0752	0723	0695	0667	0639	23				
24	0957	0927	0897	0868	0838	0809	0780	0751	0723	0694	0666	0638	24				
25	0957	0927	0897	0867	0838	0809	0780	0751	0722	0694	0666	0638	25				
26	0956	0926	0896	0867	0837	0808	0779	0751	0722	0694	0665	0637	26				
27	0956	0926	0896	0866	0837	0808	0779	0750	0721	0693	0665	0637	27				
28	0955	0925	0895	0866	0836	0807	0778	0750	0721	0693	0664	0636	28				
29	0955	0925	0895	0865	0836	0807	0778	0749	0721	0692	0664	0636	29				
30	0954	0924	0894	0865	0835	0806	0777	0749	0720	0692	0663	0635	30				
31	0954	0924	0894	0864	0835	0806	0777	0748	0720	0691	0663	0635	31				
32	0953	0923	0893	0864	0834	0805	0776	0748	0719	0691	0663	0634	32				
33	0953	0923	0893	0863	0834	0805	0776	0747	0719	0690	0662	0634	33				
34	0952	0922	0892	0863	0834	0804	0775	0747	0718	0690	0662	0634	34				
35	0952	0922	0892	0862	0833	0804	0775	0746	0718	0689	0661	0633	35				
36	0951	0921	0891	0862	0833	0803	0774	0746	0717	0688	0661	0633	36				
37	0951	0921	0891	0861	0832	0803	0774	0745	0717	0688	0660	0632	37				
38	0950	0920	0890	0861	0832	0802	0774	0745	0716	0688	0660	0632	38				
39	0950	0920	0890	0860	0831	0802	0773	0744	0716	0687	0659	0631	39				
40	0949	0919	0889	0860	0831	0801	0773	0744	0715	0687	0659	0631	40				
41	0949	0919	0889	0859	0830	0801	0772	0743	0715	0686	0658	0630	41				
42	0948	0918	0888	0859	0830	0801	0772	0743	0714	0686	0657	0629	42				
43	0948	0918	0888	0858	0829	0800	0771	0742	0714	0685	0657	0629	43				
44	0947	0917	0887	0858	0829	0800	0771	0742	0713	0685	0657	0629	44				
45	0947	0917	0887	0857	0828	0799	0770	0741	0713	0685	0656	0628	45				
46	0946	0916	0886	0857	0828	0799	0770	0741	0712	0684	0656	0628	46				
47	0946	0916	0886	0856	0827	0798	0769	0740	0712	0684	0655	0628	47				
48	0945	0915	0885	0856	0827	0798	0769	0740	0711	0683	0655	0627	48				
49	0945	0915	0885	0855	0826	0797	0768	0740	0711	0683	0655	0627	49				
50	0944	0914	0884	0855	0826	0797	0768	0739	0711	0682	0654	0626	50				
51	0944	0914	0884	0855	0825	0796	0767	0739	0710	0682	0654	0626	51				
52	0943	0913	0883	0854	0825	0796	0767	0738	0710	0681	0653	0625	52				
53	0943	0913	0883	0854	0824	0795	0766	0738	0709	0681	0653	0625	53				
54	0942	0912	0883	0853	0824	0795	0766	0737	0709	0680	0652	0624	54				
55	0942	0912	0882	0853	0823	0794	0765	0737	0708	0680	0652	0624	55				
56	0941	0911	0882	0852	0823	0794	0765	0736	0708	0679	0651	0623	56				
57	0941	0911	0881	0852	0822	0793	0764	0736	0707	0679	0651	0623	57				
58	0940	0910	0881	0851	0822	0793	0764	0735	0707	0678	0650	0622	58				
59	0940	0910	0880	0851	0821	0792	0763	0735	0706	0678	0650	0622	59				
Seconds		24'	25'	26'	27'	28'	29'	30'	31'	32'	33'	34'	35'	Seconds			
2 HOURS, or 2 DEGREES.																	

2 HOURS, or 2 DEGREES.

PROPORTIONAL LOGARITHMS

Seconds		2 HOURS, OR 2 DEGREES.												Seconds	
		36'	37'	38'	39'	40'	41'	42'	43'	44'	45'	46'	47'		
0	0621	0594	0566	0539	0512	0484	0458	0431	0404	0378	0352	0326	0300	0	0
1	0621	0593	0566	0538	0511	0484	0457	0430	0404	0377	0351	0325	0299	1	1
2	0621	0593	0565	0538	0511	0484	0457	0430	0403	0377	0351	0325	0299	2	2
3	0620	0592	0565	0537	0510	0483	0456	0430	0403	0377	0350	0324	0298	3	3
4	0620	0592	0564	0537	0510	0483	0456	0429	0403	0376	0350	0324	0298	4	4
5	0619	0591	0564	0536	0509	0482	0455	0429	0402	0376	0349	0323	0297	5	5
6	0619	0591	0563	0536	0509	0482	0455	0428	0402	0375	0349	0323	0297	6	6
7	0618	0591	0563	0536	0508	0481	0454	0428	0401	0375	0349	0323	0297	7	7
8	0618	0590	0562	0535	0508	0481	0454	0427	0401	0374	0348	0322	0296	8	8
9	0617	0590	0562	0535	0507	0480	0454	0427	0400	0374	0348	0322	0296	9	9
10	0617	0589	0562	0534	0507	0480	0453	0426	0400	0374	0347	0321	0295	10	10
11	0616	0589	0561	0534	0507	0480	0453	0426	0399	0373	0347	0321	0295	11	11
12	0616	0588	0561	0533	0506	0479	0452	0426	0399	0373	0346	0320	0294	12	12
13	0615	0588	0560	0533	0506	0479	0452	0425	0399	0372	0346	0320	0294	13	13
14	0615	0587	0560	0532	0505	0478	0451	0425	0398	0372	0346	0319	0293	14	14
15	0615	0587	0559	0532	0505	0478	0451	0424	0398	0371	0345	0319	0293	15	15
16	0614	0586	0559	0531	0504	0477	0450	0424	0397	0371	0345	0319	0293	16	16
17	0614	0586	0558	0531	0504	0477	0450	0423	0397	0370	0344	0318	0292	17	17
18	0613	0585	0558	0531	0503	0476	0450	0423	0396	0370	0344	0318	0292	18	18
19	0613	0585	0557	0530	0503	0476	0449	0422	0396	0370	0343	0317	0291	19	19
20	0612	0585	0557	0530	0502	0475	0449	0422	0395	0369	0343	0317	0291	20	20
21	0612	0584	0557	0529	0502	0475	0448	0422	0395	0369	0342	0316	0290	21	21
22	0611	0584	0556	0529	0502	0475	0448	0421	0395	0368	0342	0316	0290	22	22
23	0611	0583	0556	0528	0501	0474	0447	0421	0394	0368	0342	0316	0290	23	23
24	0610	0583	0555	0528	0501	0474	0447	0420	0394	0367	0341	0315	0289	24	24
25	0610	0582	0555	0527	0500	0473	0446	0420	0393	0367	0341	0315	0289	25	25
26	0609	0582	0554	0527	0500	0473	0446	0419	0393	0366	0340	0314	0288	26	26
27	0609	0581	0554	0526	0499	0472	0446	0419	0392	0366	0340	0314	0288	27	27
28	0609	0581	0553	0526	0499	0472	0445	0418	0392	0366	0339	0313	0287	28	28
29	0608	0580	0553	0526	0498	0471	0445	0418	0392	0365	0339	0313	0287	29	29
30	0608	0580	0552	0525	0498	0471	0444	0418	0391	0365	0339	0313	0287	30	30
31	0607	0579	0552	0525	0498	0471	0444	0417	0391	0364	0338	0312	0286	31	31
32	0607	0579	0552	0524	0497	0470	0443	0417	0390	0364	0338	0312	0286	32	32
33	0606	0579	0551	0524	0497	0470	0443	0416	0390	0363	0337	0311	0285	33	33
34	0606	0578	0551	0523	0496	0469	0442	0416	0389	0363	0337	0311	0285	34	34
35	0605	0578	0550	0523	0496	0469	0442	0415	0389	0363	0336	0310	0284	35	35
36	0605	0577	0550	0522	0495	0468	0442	0415	0388	0362	0336	0310	0284	36	36
37	0604	0577	0549	0522	0495	0468	0441	0414	0388	0362	0336	0310	0283	37	37
38	0604	0576	0549	0521	0494	0467	0441	0414	0388	0361	0335	0309	0283	38	38
39	0603	0576	0548	0521	0494	0467	0440	0414	0387	0361	0335	0309	0282	39	39
40	0603	0575	0548	0521	0493	0466	0440	0413	0387	0360	0334	0308	0282	40	40
41	0602	0575	0547	0520	0493	0466	0439	0413	0386	0360	0334	0308	0281	41	41
42	0602	0574	0547	0520	0493	0466	0439	0412	0386	0359	0333	0307	0281	42	42
43	0602	0574	0546	0519	0492	0465	0438	0412	0385	0359	0333	0307	0280	43	43
44	0601	0573	0546	0519	0492	0465	0438	0411	0385	0359	0333	0307	0280	44	44
45	0601	0573	0546	0518	0491	0464	0438	0411	0384	0358	0332	0306	0279	45	45
46	0600	0573	0545	0518	0491	0464	0437	0410	0384	0358	0332	0306	0279	46	46
47	0600	0572	0545	0517	0490	0463	0437	0410	0384	0357	0331	0305	0278	47	47
48	0599	0572	0544	0517	0490	0463	0436	0410	0383	0357	0331	0305	0278	48	48
49	0599	0571	0544	0517	0489	0462	0436	0409	0383	0356	0330	0304	0277	49	49
50	0598	0571	0543	0516	0489	0462	0435	0409	0382	0356	0330	0304	0277	50	50
51	0598	0570	0543	0516	0489	0462	0435	0408	0382	0356	0329	0304	0276	51	51
52	0597	0570	0542	0515	0488	0461	0434	0408	0381	0355	0329	0303	0276	52	52
53	0597	0569	0542	0514	0488	0461	0434	0407	0381	0355	0329	0303	0275	53	53
54	0596	0569	0541	0514	0487	0460	0434	0407	0381	0354	0328	0302	0275	54	54
55	0596	0568	0541	0514	0487	0460	0433	0406	0380	0354	0328	0302	0274	55	55
56	0596	0568	0541	0513	0486	0459	0433	0406	0380	0353	0327	0301	0274	56	56
57	0595	0568	0540	0513	0486	0459	0432	0406	0379	0353	0327	0301	0273	57	57
58	0595	0567	0540	0512	0485	0458	0432	0405	0379	0353	0326	0300	0273	58	58
59	0594	0567	0539	0512	0485	0458	0431	0405	0378	0352	0326	0300	0272	59	59
Seconds		36'	37'	38'	39'	40'	41'	42'	43'	44'	45'	46'	47'	Seconds	
		2 HOURS, OR 2 DEGREES.													

PROPORTIONAL LOGARITHMS.

Seconds		2 HOURS, OF 2 DEGREES.												Seconds	
		48'	49'	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'		
0	0300	0274	0248	0223	0197	0172	0147	0122	0098	0073	0049	0024	0	0	0
1	0299	0273	0248	0222	0197	0172	0147	0122	0097	0073	0048	0024	1	1	1
2	0299	0273	0247	0222	0197	0171	0146	0122	0097	0072	0048	0023	2	2	2
3	0298	0273	0247	0221	0196	0171	0146	0121	0096	0072	0047	0023	3	3	3
4	0298	0272	0247	0221	0196	0171	0146	0121	0096	0071	0047	0023	4	4	4
5	0297	0272	0246	0221	0195	0170	0145	0120	0096	0071	0046	0022	5	5	5
6	0297	0271	0246	0220	0195	0170	0145	0120	0095	0071	0046	0022	6	6	6
7	0297	0271	0245	0220	0194	0169	0144	0119	0095	0070	0046	0021	7	7	7
8	0296	0270	0245	0219	0194	0169	0144	0119	0094	0070	0045	0021	8	8	8
9	0296	0270	0244	0219	0194	0169	0143	0119	0094	0069	0045	0021	9	9	9
10	0295	0270	0244	0219	0193	0168	0143	0118	0093	0069	0044	0020	10	10	10
11	0295	0269	0244	0218	0193	0168	0143	0118	0093	0068	0044	0020	11	11	11
12	0294	0269	0243	0218	0192	0167	0142	0117	0093	0068	0044	0019	12	12	12
13	0294	0268	0243	0217	0192	0167	0142	0117	0092	0068	0043	0019	13	13	13
14	0294	0268	0242	0217	0192	0166	0141	0117	0092	0067	0043	0019	14	14	14
15	0293	0267	0242	0216	0191	0166	0141	0116	0091	0067	0042	0018	15	15	15
16	0293	0267	0241	0216	0191	0166	0141	0116	0091	0066	0042	0018	16	16	16
17	0292	0267	0241	0216	0190	0165	0140	0115	0091	0066	0042	0017	17	17	17
18	0292	0266	0241	0215	0190	0165	0140	0115	0090	0066	0041	0017	18	18	18
19	0291	0266	0240	0215	0189	0164	0139	0114	0090	0065	0041	0017	19	19	19
20	0291	0265	0240	0214	0189	0164	0139	0114	0089	0065	0040	0016	20	20	20
21	0291	0265	0239	0214	0189	0163	0139	0114	0089	0064	0040	0016	21	21	21
22	0290	0264	0239	0213	0188	0163	0138	0113	0089	0064	0040	0015	22	22	22
23	0290	0264	0238	0213	0188	0163	0138	0113	0088	0064	0039	0015	23	23	23
24	0289	0264	0238	0213	0187	0162	0137	0112	0088	0063	0039	0015	24	24	24
25	0289	0263	0238	0212	0187	0162	0137	0112	0087	0063	0038	0014	25	25	25
26	0288	0263	0237	0212	0187	0161	0136	0112	0087	0062	0038	0014	26	26	26
27	0288	0262	0237	0211	0186	0161	0136	0111	0087	0062	0038	0013	27	27	27
28	0288	0262	0236	0211	0186	0161	0136	0111	0086	0062	0037	0013	28	28	28
29	0287	0261	0236	0211	0185	0160	0135	0110	0086	0061	0037	0012	29	29	29
30	0287	0261	0235	0210	0185	0160	0135	0110	0085	0061	0036	0012	30	30	30
31	0286	0261	0235	0210	0184	0159	0134	0110	0085	0060	0036	0012	31	31	31
32	0286	0260	0235	0209	0184	0159	0134	0109	0084	0060	0036	0011	32	32	32
33	0285	0260	0234	0209	0184	0158	0134	0109	0084	0060	0035	0011	33	33	33
34	0285	0259	0234	0208	0183	0158	0133	0108	0084	0059	0035	0010	34	34	34
35	0285	0259	0233	0208	0183	0158	0133	0108	0083	0059	0034	0010	35	35	35
36	0284	0258	0233	0208	0182	0157	0132	0107	0083	0058	0034	0010	36	36	36
37	0284	0258	0233	0207	0182	0157	0132	0107	0082	0058	0034	0009	37	37	37
38	0283	0258	0232	0207	0181	0156	0131	0107	0082	0057	0033	0009	38	38	38
39	0283	0257	0232	0206	0181	0156	0131	0106	0082	0057	0033	0008	39	39	39
40	0282	0257	0231	0206	0181	0156	0131	0106	0081	0057	0032	0008	40	40	40
41	0282	0256	0231	0205	0180	0155	0130	0105	0081	0056	0032	0008	41	41	41
42	0282	0256	0230	0205	0180	0155	0130	0105	0080	0056	0031	0007	42	42	42
43	0281	0255	0230	0205	0179	0154	0129	0105	0080	0055	0031	0007	43	43	43
44	0281	0255	0230	0204	0179	0154	0129	0104	0080	0055	0031	0006	44	44	44
45	0280	0255	0229	0204	0179	0153	0129	0104	0079	0055	0030	0006	45	45	45
46	0280	0254	0229	0203	0178	0153	0128	0103	0079	0054	0030	0006	46	46	46
47	0279	0254	0228	0203	0178	0153	0128	0103	0078	0054	0029	0005	47	47	47
48	0279	0253	0228	0202	0177	0152	0127	0103	0078	0053	0029	0005	48	48	48
49	0279	0253	0227	0202	0177	0152	0127	0102	0077	0053	0029	0004	49	49	49
50	0278	0252	0227	0202	0176	0151	0126	0102	0077	0052	0028	0004	50	50	50
51	0278	0252	0227	0201	0176	0151	0126	0101	0077	0052	0028	0004	51	51	51
52	0277	0252	0226	0201	0176	0151	0126	0101	0076	0052	0027	0003	52	52	52
53	0277	0251	0226	0200	0175	0150	0125	0100	0076	0051	0027	0003	53	53	53
54	0276	0251	0225	0200	0175	0150	0125	0100	0075	0051	0027	0002	54	54	54
55	0276	0250	0225	0200	0174	0149	0124	0100	0075	0051	0026	0002	55	55	55
56	0276	0250	0224	0199	0174	0149	0124	0099	0075	0050	0026	0002	56	56	56
57	0275	0250	0224	0199	0174	0148	0124	0099	0074	0050	0025	0001	57	57	57
58	0275	0249	0224	0198	0173	0148	0123	0098	0074	0049	0025	0001	58	58	58
59	0274	0249	0223	0198	0173	0148	0123	0098	0073	0049	0025	0000	59	59	59
Seconds		48'	49'	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'	Seconds	

2 HOURS, OF 2 DEGREES.

LOGARITHMIC HALF ELAPSED TIME.

Minutes	0 HOUR.												Primes
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
0		43936	13833	96224	83730	74039	66121	59427	53628	48512	43937	39797	
1	2.36018	32542	29324	26328	23525	20892	18410	16061	13834	11715	99695	87764	
2	05916	04143	02440	00801	99221	97697	96225	94801	93422	92086	90790	89531	
3	1.88307	87118	85959	84831	83732	82660	81613	80591	79593	78617	77663	76729	
4	1.75815	74919	74042	73182	72339	71512	70700	69903	69121	68352	67597	66855	
5	66125	65407	64701	64006	63322	62649	61986	61333	60690	60056	59431	58815	
6	58208	57609	57019	56436	55861	55293	54733	54180	53634	53094	52561	52035	
7	51515	51001	50494	49992	49496	49005	48520	48040	47566	47096	46632	46173	
8	1.45718	45268	44823	44382	43946	43514	43086	42662	42243	41828	41417	41009	1 =
9	40605	40205	39809	39416	39027	38641	38258	37879	37504	37131	36762	36395	2.
10	30632	30372	30115	29860	29609	29360	29115	28872	28631	28393	28158	27925	3.
11	31896	31568	31243	30921	30600	30282	29967	29653	29342	29034	28727	28422	4.
12	1.28120	27820	27522	27225	26931	26639	26349	26061	25774	25490	25207	24926	1 =
13	24647	24370	24095	23821	23549	23279	23010	22743	22478	22214	21952	21691	2.
14	21433	21175	20919	20665	20412	20160	19910	19662	19415	19169	18925	18682	3.
15	18440	18200	17961	17723	17487	17252	17018	16786	16554	16324	16096	15868	4.
16	1.15642	15416	15192	14969	14748	14527	14307	14089	13872	13656	13440	13226	1 =
17	13013	12801	12590	12380	12172	11964	11757	11551	11346	11142	10939	10737	2.
18	10536	10236	10136	09938	09741	09544	09348	09154	08960	08767	08574	08383	3.
19	08103	08003	07814	07626	07439	07253	07067	06883	06699	06515	06333	06151	4.
20	1.05970	05790	05611	05432	05254	05077	04901	04725	04550	04376	04202	04029	1 =
21	03857	03686	03515	03345	03175	03006	02838	02671	02504	02338	02172	02007	2.
22	01843	01679	01516	01354	01192	01030	00870	00710	00550	00392	00233	00076	3.
23	0.99918	99762	99606	99451	99296	99141	98988	98834	98682	98530	98378	98227	4.
24	0.98077	97927	97777	97628	97480	97332	97184	97038	96891	96745	96600	96455	1 =
25	96310	96167	96023	95880	95738	95596	95454	95313	95172	95032	94892	94753	2.
26	94614	94476	94338	94200	94063	93927	93791	93655	93519	93385	93250	93116	3.
27	92982	92849	92716	92584	92452	92320	92189	92059	91928	91798	91669	91539	4.
28	0.91411	91282	91154	91027	90899	90772	90646	90520	90394	90268	90143	90019	1 =
29	89894	89771	89647	89524	89401	89278	89156	89034	88913	88792	88671	88550	2.
30	88430	88311	88191	88072	87953	87835	87717	87599	87481	87364	87247	87131	3.
31	87015	86899	86783	86668	86553	86438	86324	86210	86096	85983	85870	85757	4.
32	0.85645	85532	85420	85309	85197	85086	84976	84865	84755	84645	84535	84426	1 =
33	84317	84208	84100	83992	83884	83776	83669	83561	83455	83348	83242	83136	2.
34	83030	82924	82819	82714	82609	82505	82401	82297	82193	82089	81986	81883	3.
35	81780	81678	81576	81474	81372	81271	81169	81068	80968	80867	80767	80667	4.
36	0.80567	80467	80368	80269	80170	80071	79973	79875	79777	79679	79581	79484	1 =
37	79387	79290	79193	79097	78999	78905	78809	78714	78618	78523	78428	78334	2.
38	78239	78145	78051	77957	77863	77770	77677	77584	77491	77398	77306	77214	3.
39	77122	77030	76938	76847	76756	76665	76574	76483	76393	76303	76213	76123	4.
40	0.76033	75944	75854	75765	75676	75588	75499	75411	75323	75235	75147	75059	1 =
41	74972	74885	74798	74711	74624	74537	74451	74365	74279	74193	74108	74022	2.
42	73937	73852	73767	73682	73597	73513	73429	73345	73261	73177	73093	73010	3.
43	72927	72843	72761	72678	72595	72513	72430	72348	72266	72185	72103	72021	4.
44	0.71940	71859	71778	71697	71616	71536	71456	71375	71295	71215	71136	71056	1 =
45	70976	70897	70818	70739	70660	70581	70503	70424	70346	70268	70190	70112	2.
46	70035	69957	69880	69802	69725	69648	69571	69495	69418	69342	69265	69189	3.
47	69113	69038	68962	68886	68811	68735	68660	68585	68510	68436	68361	68287	4.
48	0.68212	68138	68064	67990	67916	67842	67769	67695	67622	67549	67476	67403	1 =
49	67330	67257	67185	67112	67040	66968	66896	66824	66752	66681	66609	66538	2.
50	66466	66395	66324	66253	66182	66112	66041	65971	65900	65830	65760	65690	3.
51	65620	65551	65481	65411	65342	65273	65204	65135	65066	64997	64928	64860	4.
52	0.64791	64723	64655	64587	64519	64451	64383	64315	64248	64180	64113	64046	1 =
53	63979	63912	63845	63778	63711	63645	63578	63512	63445	63379	63313	63247	2.
54	63182	63116	63050	62985	62919	62854	62789	62724	62659	62594	62529	62464	3.
55	62400	62335	62271	62207	62142	62078	62014	61950	61887	61823	61759	61696	4.
56	0.61633	61569	61505	61443	61380	61317	61254	61192	61129	61066	61004	60942	1 =
57	60879	60817	60755	60693	60632	60570	60508	60447	60385	60324	60262	60201	2.
58	60140	60079	60018	59957	59897	59836	59775	59715	59655	59594	59534	59474	3.
59	59414	59354	59294	59234	59175	59115	59056	58996	58937	58878	58818	58759	4.
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Prepares

LOGARITHMIC HALF ELAPSED TIME.

1 HOUR.													Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	0.58700	58642	58583	58524	58465	58407	58348	58290	58232	58173	58115	58057	1" = 11
1	57999	57941	57884	57826	57768	57711	57653	57596	57539	57481	57424	57367	2. 22
2	57310	57253	57196	57140	57083	57026	56970	56914	56857	56801	56745	56689	3. 34
3	56633	56577	56521	56465	56409	56354	56298	56243	56187	56132	56077	56021	4. 45
4	0.55966	55911	55856	55801	55747	55692	55637	55583	55528	55474	55419	55365	1 = 11
5	55311	55257	55203	55149	55095	55041	54987	54933	54880	54826	54773	54719	2. 22
6	54666	54613	54559	54506	54453	54400	54347	54294	54242	54189	54136	54084	3. 32
7	54031	53979	53926	53874	53822	53770	53718	53666	53614	53562	53510	53458	4. 43
8	0.53407	53355	53303	53252	53200	53149	53098	53047	52995	52944	52893	52842	1. = 10
9	52791	52741	52690	52639	52589	52538	52488	52437	52387	52336	52286	52236	2. 20
10	52186	52136	52086	52036	51986	51936	51887	51837	51787	51738	51688	51639	3. 30
11	51589	51540	51491	51442	51393	51344	51295	51246	51197	51148	51099	51050	4. 40
12	0.51002	50953	50905	50856	50808	50760	50711	50663	50615	50567	50519	50471	1 = 10
13	50423	50375	50327	50279	50232	50184	50137	50089	50042	49994	49947	49900	2. 19
14	49852	49805	49758	49711	49664	49617	49570	49523	49477	49430	49383	49337	3. 29
15	49290	49244	49197	49151	49104	49058	49012	48966	48920	48874	48828	48782	4. 38
16	0.48736	48690	48644	48599	48553	48507	48462	48416	48371	48325	48280	48235	1 = 9
17	48189	48144	48099	48054	48009	47964	47919	47874	47829	47785	47740	47695	2. 18
18	47651	47606	47561	47517	47473	47428	47384	47340	47295	47251	47207	47163	3. 27
19	47119	47075	47031	46987	46944	46900	46856	46812	46769	46725	46682	46638	4. 36
20	0.46595	46552	46508	46465	46422	46379	46335	46292	46249	46206	46163	46121	1 = 9
21	46078	46035	45992	45950	45907	45864	45822	45779	45737	45694	45652	45610	2. 17
22	45568	45525	45483	45441	45399	45357	45315	45273	45231	45189	45147	45106	3. 26
23	45064	45022	44981	44939	44898	44856	44815	44773	44732	44691	44650	44608	4. 34
24	0.44567	44526	44485	44444	44403	44362	44321	44280	44239	44199	44158	44117	1 = 8
25	44077	44036	43996	43955	43915	43874	43834	43793	43753	43713	43673	43633	2. 16
26	43593	43552	43512	43472	43432	43393	43353	43313	43273	43233	43194	43154	3. 24
27	43115	43075	43035	42996	42957	42917	42878	42838	42799	42760	42721	42682	4. 32
28	0.42643	42603	42564	42525	42486	42448	42409	42370	42331	42292	42254	42215	1 = 8
29	42176	42138	42099	42061	42022	41984	41946	41907	41869	41831	41792	41754	2. 15
30	41716	41678	41640	41602	41564	41526	41488	41450	41412	41375	41337	41299	3. 23
31	41261	41224	41186	41149	41111	41074	41036	40999	40961	40924	40887	40849	4. 31
32	0.40812	40775	40738	40701	40664	40627	40590	40553	40516	40479	40442	40405	1 = 7
33	40369	40332	40295	40258	40222	40185	40149	40112	40076	40039	40003	39966	2. 15
34	39930	39894	39858	39821	39785	39749	39713	39677	39641	39605	39569	39533	3. 22
35	39497	39461	39425	39389	39354	39318	39282	39247	39211	39175	39140	39104	4. 20
36	0.39069	39033	38998	38962	38927	38892	38857	38821	38786	38751	38716	38681	1 = 7
37	38646	38611	38576	38541	38506	38471	38436	38401	38366	38331	38297	38262	2. 14
38	38227	38193	38158	38124	38089	38055	38020	37986	37951	37917	37883	37848	3. 21
39	37814	37780	37745	37711	37677	37643	37609	37575	37541	37507	37473	37439	4. 28
40	0.37405	37371	37338	37304	37270	37236	37203	37169	37135	37102	37068	37035	1 = 7
41	37001	36968	36934	36901	36867	36834	36801	36768	36734	36701	36668	36635	2. 13
42	36602	36569	36535	36502	36469	36436	36404	36371	36338	36305	36272	36239	3. 20
43	36207	36174	36141	36108	36076	36043	36011	35978	35946	35913	35881	35848	4. 26
44	0.35816	35783	35751	35719	35687	35654	35622	35590	35558	35526	35494	35462	1 = 6
45	35429	35397	35365	35334	35302	35270	35238	35206	35174	35142	35111	35079	2. 13
46	35047	35016	34984	34952	34921	34889	34858	34826	34795	34763	34732	34701	3. 19
47	34669	34638	34607	34575	34544	34513	34482	34451	34420	34388	34357	34326	4. 25
48	0.34295	34264	34233	34203	34172	34141	34110	34079	34048	34018	33987	33956	1 = 6
49	33925	33895	33864	33834	33803	33773	33742	33712	33681	33651	33620	33590	2. 12
50	33559	33529	33499	33469	33438	33408	33378	33348	33318	33288	33257	33227	3. 18
51	33197	33167	33137	33107	33078	33048	33018	32988	32958	32928	32899	32869	4. 24
52	0.32839	32809	32780	32750	32721	32691	32661	32632	32602	32573	32543	32514	1 = 6
53	32485	32455	32426	32397	32367	32338	32309	32280	32250	32221	32192	32163	2. 12
54	32134	32105	32076	32047	32018	31989	31960	31931	31902	31873	31844	31815	3. 17
55	31787	31758	31729	31700	31672	31643	31614	31586	31557	31529	31500	31471	4. 23
56	0.31443	31414	31386	31358	31329	31301	31272	31244	31216	31188	31159	31131	1 = 6
57	31103	31075	31046	31018	30990	30962	30934	30906	30878	30850	30822	30794	2. 11
58	30766	30738	30710	30683	30655	30627	30599	30571	30544	30516	30488	30461	3. 17
59	30433	30405	30378	30350	30323	30295	30268	30240	30213	30185	30158	30130	4. 22
1 HOUR.													Proport. parts.

LOGARITHMIC HALF ELAPSED TIME

2 HOURS.												
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	0.30103	30076	30048	30021	29994	29967	29939	29912	29885	29858	29831	29804
1	29776	29749	29722	29695	29668	29641	29614	29587	29561	29534	29507	29480
2	29453	29426	29400	29373	29346	29319	29293	29266	29239	29213	29186	29160
3	29133	29107	29080	29054	29027	29001	28974	28948	28921	28895	28869	28842
4	0.28816	28790	28764	28737	28711	28685	28659	28633	28607	28580	28554	28528
5	28502	28476	28450	28424	28398	28372	28347	28321	28295	28269	28243	28217
6	28192	28166	28140	28114	28089	28063	28037	28012	27986	27960	27935	27909
7	27884	27858	27833	27807	27782	27756	27731	27706	27680	27655	27630	27604
8	0.27579	27554	27529	27503	27478	27453	27428	27403	27378	27352	27327	27302
9	27277	27252	27227	27202	27177	27152	27127	27103	27078	27053	27028	27003
10	26978	26954	26929	26904	26879	26855	26830	26805	26781	26756	26732	26707
11	26682	26658	26633	26609	26584	26560	26535	26511	26487	26462	26438	26414
12	0.26389	26365	26341	26316	26292	26268	26244	26219	26195	26171	26147	26123
13	26099	26075	26051	26027	26003	25979	25955	25931	25907	25883	25859	25835
14	25811	25787	25763	25740	25716	25692	25668	25645	25621	25597	25573	25550
15	25526	25503	25479	25455	25432	25408	25385	25361	25338	25314	25291	25267
16	0.25244	25220	25197	25174	25150	25127	25104	25080	25057	25034	25011	24987
17	24964	24941	24918	24895	24872	24849	24825	24802	24779	24756	24733	24710
18	24687	24664	24641	24618	24595	24573	24550	24527	24504	24481	24458	24436
19	24413	24390	24367	24345	24322	24299	24277	24254	24231	24209	24186	24163
20	0.24141	24118	24096	24073	24051	24028	24006	23983	23961	23939	23916	23894
21	23872	23849	23827	23805	23782	23760	23738	23716	23693	23671	23649	23627
22	23605	23583	23560	23538	23516	23494	23472	23450	23428	23406	23384	23362
23	23340	23318	23296	23274	23253	23231	23209	23187	23165	23143	23122	23100
24	0.23078	23056	23035	23013	22991	22970	22948	22926	22905	22883	22862	22840
25	22819	22797	22776	22754	22733	22711	22690	22668	22647	22625	22604	22583
26	22561	22540	22519	22497	22476	22455	22434	22412	22391	22370	22349	22328
27	22306	22285	22264	22243	22222	22201	22180	22159	22138	22117	22096	22075
28	0.22054	22033	22012	21991	21970	21949	21928	21907	21887	21866	21845	21824
29	21803	21783	21762	21741	21720	21700	21679	21658	21638	21617	21597	21576
30	21555	21535	21514	21494	21473	21453	21432	21412	21391	21371	21350	21330
31	21309	21289	21269	21248	21228	21208	21187	21167	21147	21127	21106	21086
32	0.21066	21046	21025	21005	20985	20965	20945	20925	20905	20885	20864	20844
33	20824	20804	20784	20764	20744	20724	20704	20685	20665	20645	20625	20605
34	20585	20565	20545	20526	20506	20486	20466	20446	20427	20407	20387	20368
35	20348	20328	20309	20289	20269	20250	20230	20211	20191	20171	20152	20132
36	0.20113	20093	20074	20054	20035	20016	19996	19977	19957	19938	19919	19899
37	19880	19861	19841	19822	19803	19783	19764	19745	19726	19707	19687	19668
38	19649	19630	19611	19592	19572	19553	19534	19515	19496	19477	19458	19439
39	19420	19401	19382	19363	19344	19325	19306	19288	19269	19250	19231	19212
40	0.19193	19174	19156	19137	19118	19099	19081	19062	19043	19024	19006	18987
41	18968	18950	18931	18913	18894	18875	18857	18838	18820	18801	18783	18764
42	18746	18727	18709	18690	18672	18653	18635	18617	18598	18580	18561	18543
43	18525	18506	18488	18470	18452	18433	18415	18397	18379	18360	18342	18324
44	0.18306	18288	18269	18251	18233	18215	18197	18179	18161	18143	18125	18107
45	18089	18071	18053	18035	18017	17999	17981	17963	17945	17927	17909	17891
46	17874	17856	17838	17820	17802	17785	17767	17749	17731	17713	17695	17678
47	17660	17643	17625	17607	17590	17572	17554	17537	17519	17502	17484	17467
48	0.17449	17431	17414	17396	17379	17361	17344	17327	17309	17292	17274	17257
49	17239	17222	17205	17187	17170	17153	17135	17118	17101	17083	17066	17049
50	17032	17014	16997	16980	16963	16946	16929	16911	16894	16877	16860	16843
51	16826	16809	16792	16775	16758	16741	16724	16707	16690	16673	16656	16639
52	0.16622	16605	16588	16571	16554	16537	16520	16503	16487	16470	16453	16436
53	16419	16403	16386	16369	16352	16336	16319	16302	16285	16269	16252	16235
54	16219	16202	16186	16169	16152	16136	16119	16103	16086	16070	16053	16037
55	16020	16004	15987	15971	15954	15938	15921	15905	15888	15872	15856	15839
56	0.15823	15807	15790	15774	15758	15741	15725	15709	15692	15676	15660	15644
57	15628	15611	15595	15579	15563	15547	15531	15514	15498	15482	15466	15450
58	15434	15418	15402	15386	15370	15354	15338	15322	15306	15290	15274	15258
59	15242	15226	15210	15194	15178	15162	15147	15131	15115	15099	15083	15067
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
2 HOURS.												

2 HOURS.

LOGARITHMIC HALF ELAPSED TIME.

3 HOURS.												Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
0.15052	15036	15020	15004	14988	14973	14957	14941	14926	14910	14894	14879	1" = 3
14863	14847	14832	14816	14800	14785	14769	14754	14738	14722	14707	14691	2. 6
14676	14660	14645	14629	14614	14598	14583	14567	14552	14537	14521	14506	3. 9
14490	14475	14460	14444	14429	14414	14398	14383	14368	14352	14337	14322	4. 12
0.14307	14291	14276	14261	14246	14231	14215	14200	14185	14170	14155	14140	1 = 3
14124	14109	14094	14079	14064	14049	14034	14019	14004	13989	13974	13959	2. 6
13944	13929	13914	13899	13884	13869	13854	13839	13824	13809	13795	13780	3. 9
13765	13750	13735	13720	13705	13691	13676	13661	13646	13632	13617	13602	4. 12
0.13587	13573	13558	13543	13528	13514	13499	13484	13470	13455	13441	13426	1 = 3
13411	13397	13382	13368	13353	13339	13324	13309	13295	13280	13266	13251	2. 6
13237	13223	13208	13194	13179	13165	13150	13136	13122	13107	13093	13078	3. 9
13064	13050	13035	13021	13007	12992	12978	12964	12950	12935	12921	12907	4. 12
0.12893	12878	12864	12850	12836	12822	12808	12793	12779	12765	12751	12737	1 = 3
12723	12709	12695	12681	12667	12652	12638	12624	12610	12596	12582	12568	2. 6
12554	12540	12527	12513	12499	12485	12471	12457	12443	12429	12415	12401	3. 8
12388	12374	12360	12346	12332	12318	12305	12291	12277	12263	12250	12236	4. 11
0.12222	12208	12195	12181	12167	12154	12140	12126	12113	12099	12085	12072	1 = 3
12058	12044	12031	12017	12004	11990	11977	11963	11950	11936	11922	11909	2. 5
11896	11882	11869	11855	11842	11828	11815	11801	11788	11775	11761	11748	3. 8
11734	11721	11708	11694	11681	11668	11654	11641	11628	11614	11601	11588	4. 11
0.11575	11561	11548	11535	11522	11509	11495	11482	11469	11456	11443	11429	1 = 3
11416	11403	11390	11377	11364	11351	11338	11325	11312	11299	11286	11272	2. 5
11259	11246	11233	11220	11207	11194	11182	11169	11156	11143	11130	11117	3. 8
11104	11091	11078	11065	11052	11040	11027	11014	11001	10988	10975	10963	4. 10
0.10950	10937	10924	10911	10899	10886	10873	10861	10848	10835	10822	10810	1 = 3
10797	10784	10772	10759	10746	10734	10721	10709	10696	10683	10671	10658	2. 5
10646	10633	10621	10608	10595	10583	10570	10558	10545	10533	10520	10508	3. 8
10496	10483	10471	10458	10446	10433	10421	10409	10396	10384	10372	10359	4. 10
0.10347	10335	10322	10310	10298	10285	10273	10261	10248	10236	10224	10212	1 = 2
10199	10187	10175	10163	10151	10138	10126	10114	10102	10090	10078	10066	2. 5
10053	10041	10029	10017	10005	9993	9981	9969	9957	9945	9933	9921	3. 7
9909	9897	9885	9873	9861	9849	9837	9825	9813	9801	9789	9777	4. 10
0.99765	99753	99741	99730	99718	99706	99694	99682	99670	99658	99647	99635	1 = 2
99623	99611	99599	99588	99576	99564	99552	99541	99529	99517	99506	99494	2. 5
99482	99471	99459	99447	99436	99424	99412	99401	99389	99377	99366	99354	3. 7
99343	99331	99319	99308	99296	99285	99273	99262	99250	99239	99227	99216	4. 9
0.99204	99193	99181	99170	99158	99147	99136	99124	99113	99101	99090	99079	1 = 2
99067	99056	99045	99033	99022	99011	99000	98988	98977	98965	98954	98943	2. 5
98931	98920	98909	98898	98886	98875	98864	98853	98842	98830	98819	98808	3. 7
98797	98786	98775	98763	98752	98741	98730	98719	98708	98697	98686	98675	4. 9
0.98664	98653	98642	98630	98619	98608	98597	98586	98575	98564	98553	98542	1 = 2
98531	98521	98510	98499	98488	98477	98466	98455	98444	98433	98422	98412	2. 4
98401	98390	98379	98368	98357	98347	98336	98325	98314	98303	98293	98282	3. 7
98271	98260	98250	98239	98228	98217	98207	98196	98185	98175	98164	98153	4. 9
0.98143	98132	98121	98111	98100	98089	98079	98068	98058	98047	98037	98026	1 = 2
98015	98005	97994	97984	97973	97963	97952	97942	97931	97921	97910	97900	2. 4
97889	97879	97869	97858	97848	97837	97827	97816	97806	97796	97785	97775	3. 6
97765	97754	97744	97734	97723	97713	97703	97692	97682	97672	97661	97651	4. 8
0.97641	97631	97620	97610	97600	97590	97580	97569	97559	97549	97539	97529	1 = 2
97518	97508	97498	97488	97478	97468	97458	97448	97437	97427	97417	97407	2. 4
97397	97387	97377	97367	97357	97347	97337	97327	97317	97307	97297	97287	3. 6
97277	97267	97257	97247	97237	97227	97217	97207	97198	97188	97178	97168	4. 8
0.97158	97148	97138	97128	97119	97109	97099	97089	97079	97070	97060	97050	1 = 2
97040	97030	97021	97011	97001	96991	96982	96972	96962	96953	96943	96933	2. 4
96923	96914	96904	96894	96885	96875	96866	96856	96846	96837	96827	96818	3. 6
96808	96798	96789	96779	96770	96760	96751	96741	96732	96722	96712	96703	4. 8
0.96693	96684	96675	96665	96656	96646	96637	96627	96618	96608	96599	96590	1 = 2
96580	96571	96561	96552	96543	96533	96524	96515	96505	96496	96487	96477	2. 4
96468	96459	96449	96440	96431	96422	96412	96403	96394	96385	96375	96366	3. 5
96357	96348	96339	96329	96320	96311	96302	96293	96284	96274	96265	96256	4. 7
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proport. parts.
3 HOURS.												

LOGARITHMIC HALF ELAPSED TIME.

Minutes	4 HOURS.												
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
0	0.06247	06238	06229	06220	06211	06202	06192	06183	06174	06165	06156	06147	
1	06138	06129	06120	06111	06102	06093	06084	06075	06066	06057	06048	06039	
2	06030	06021	06013	06004	05995	05986	05977	05968	05959	05950	05941	05933	
3	05924	05915	05906	05897	05888	05880	05871	05862	05853	05844	05836	05827	
4	0.05818	05809	05801	05792	05783	05774	05766	05757	05748	05740	05731	05722	
5	05714	05705	05696	05688	05679	05670	05662	05653	05645	05636	05627	05619	
6	05610	05602	05593	05585	05576	05567	05559	05550	05542	05533	05525	05516	
7	05508	05499	05491	05482	05474	05466	05457	05449	05440	05432	05423	05415	
8	0.05407	05398	05390	05381	05373	05365	05356	05348	05340	05331	05323	05315	
9	05306	05298	05290	05281	05273	05265	05257	05248	05240	05232	05224	05215	
10	05207	05199	05191	05183	05174	05166	05158	05150	05142	05133	05125	05117	
11	05109	05101	05093	05085	05077	05068	05060	05052	05044	05036	05028	05020	
12	0.05012	05004	04996	04988	04980	04972	04964	04956	04948	04940	04932	04924	
13	04916	04908	04900	04892	04884	04876	04868	04860	04852	04845	04837	04829	
14	04821	04813	04805	04797	04790	04782	04774	04766	04758	04750	04743	04735	
15	04727	04719	04711	04704	04696	04688	04680	04673	04665	04657	04649	04642	
16	0.04634	04626	04619	04611	04603	04596	04588	04580	04573	04565	04557	04550	
17	04542	04535	04527	04519	04512	04504	04497	04489	04481	04474	04466	04459	
18	04451	04444	04436	04429	04421	04414	04406	04399	04391	04384	04376	04369	
19	04361	04354	04346	04339	04332	04324	04317	04309	04302	04295	04287	04280	
20	0.04272	04265	04258	04250	04243	04236	04228	04221	04214	04206	04199	04192	
21	04185	04177	04170	04163	04156	04148	04141	04134	04127	04119	04112	04105	
22	04098	04091	04083	04076	04069	04062	04055	04048	04040	04033	04026	04019	
23	04012	04005	03998	03991	03984	03976	03969	03962	03955	03948	03941	03934	
24	0.03927	03920	03913	03906	03899	03892	03885	03878	03871	03864	03857	03850	
25	03843	03836	03829	03822	03815	03809	03802	03795	03788	03781	03774	03767	
26	03760	03753	03747	03740	03733	03726	03719	03712	03706	03699	03692	03685	
27	03678	03672	03665	03658	03651	03645	03638	03631	03624	03618	03611	03604	
28	0.03597	03591	03584	03577	03571	03564	03557	03551	03544	03537	03531	03524	
29	03517	03511	03504	03498	03491	03484	03478	03471	03465	03458	03452	03445	
30	03439	03432	03425	03419	03412	03406	03399	03393	03386	03380	03373	03367	
31	03361	03354	03348	03341	03335	03328	03322	03315	03309	03303	03296	03290	
32	0.03283	03277	03271	03264	03258	03252	03245	03239	03233	03226	03220	03214	
33	03207	03201	03195	03189	03182	03176	03170	03163	03157	03151	03145	03138	
34	03132	03126	03120	03114	03107	03101	03095	03089	03083	03077	03070	03064	
35	03058	03052	03046	03040	03034	03027	03021	03015	03009	03003	02997	02991	
36	0.02985	02979	02973	02967	02961	02955	02949	02943	02937	02931	02925	02919	
37	02913	02907	02901	02895	02889	02883	02877	02871	02865	02859	02853	02847	
38	02841	02835	02829	02824	02818	02812	02806	02800	02794	02788	02783	02777	
39	02771	02765	02759	02753	02748	02742	02736	02730	02725	02719	02713	02707	
40	0.02701	02696	02690	02684	02679	02673	02667	02661	02656	02650	02644	02639	
41	02633	02627	02622	02616	02610	02605	02599	02593	02588	02582	02577	02571	
42	02565	02560	02554	02549	02543	02538	02532	02526	02521	02515	02510	02504	
43	02499	02493	02488	02482	02477	02471	02466	02460	02455	02449	02444	02438	
44	0.02428	02422	02417	02411	02406	02401	02395	02390	02384	02379	02374	02368	
45	02363	02358	02352	02347	02342	02336	02331	02326	02320	02315	02310	02304	
46	02304	02299	02294	02289	02283	02278	02273	02268	02262	02257	02252	02247	
47	02241	02236	02231	02226	02221	02215	02210	02205	02200	02195	02190	02185	
48	0.02179	02174	02169	02164	02159	02154	02149	02144	02139	02134	02128	02123	
49	02118	02113	02108	02103	02098	02093	02088	02083	02078	02073	02068	02063	
50	02058	02053	02048	02043	02038	02033	02028	02023	02018	02014	02009	02004	
51	01999	01994	01989	01984	01979	01974	01970	01965	01960	01955	01950	01945	
52	0.01940	01936	01931	01926	01921	01916	01912	01907	01902	01897	01892	01888	
53	01883	01878	01873	01869	01864	01859	01855	01850	01845	01840	01836	01831	
54	01826	01822	01817	01812	01808	01803	01798	01794	01789	01785	01780	01775	
55	01771	01766	01761	01757	01752	01748	01743	01739	01734	01730	01725	01720	
56	0.01716	01711	01707	01702	01698	01693	01689	01684	01680	01675	01671	01666	
57	01662	01658	01653	01649	01644	01640	01635	01631	01627	01622	01618	01613	
58	01609	01605	01600	01596	01592	01587	01583	01578	01574	01570	01566	01561	
59	01557	01553	01548	01544	01540	01535	01531	01527	01523	01518	01514	01510	
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	

4 HOURS.

LOGARITHMIC HALF ELAPSED TIME.

5 HOURS.												Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
0.01506	01501	01497	01493	01489	01485	01480	01476	01472	01468	01464	01460	1" = 1
01455	01451	01447	01443	01439	01435	01431	01426	01422	01418	01414	01410	2. 2
01406	01402	01398	01394	01390	01386	01382	01377	01373	01369	01365	01361	3. 2
01357	01353	01349	01345	01341	01337	01333	01329	01325	01321	01318	01314	4. 4
0.01310	01306	01302	01298	01294	01290	01286	01282	01278	01274	01271	01267	1" = 1
01263	01259	01255	01251	01247	01244	01240	01236	01232	01228	01224	01221	2. 2
01217	01213	01209	01206	01202	01198	01194	01191	01187	01183	01179	01176	3. 2
01172	01168	01164	01161	01157	01153	01150	01146	01142	01139	01135	01131	4. 4
0.01128	01124	01120	01117	01113	01110	01106	01102	01099	01095	01092	01088	1" = 1
01084	01081	01077	01074	01070	01067	01063	01059	01056	01052	01049	01045	2. 1
01042	01038	01035	01031	01028	01024	01021	01018	01014	01011	01007	01004	3. 2
01000	00997	00993	00990	00987	00983	00980	00976	00973	00970	00966	00963	4. 3
0.00960	00956	00953	00950	00946	00943	00940	00936	00933	00930	00926	00923	1" = 1
00920	00916	00913	00910	00907	00903	00900	00897	00894	00890	00887	00884	2. 1
00881	00878	00874	00871	00868	00865	00862	00858	00855	00852	00849	00846	3. 2
00843	00840	00836	00833	00830	00827	00824	00821	00818	00815	00812	00808	4. 3
0.00805	00802	00799	00796	00793	00790	00787	00784	00781	00778	00775	00772	1" = 1
00769	00766	00763	00760	00757	00754	00751	00748	00745	00742	00739	00736	2. 1
00733	00731	00728	00725	00722	00719	00716	00713	00710	00707	00704	00702	3. 2
00699	00696	00693	00690	00687	00685	00682	00679	00676	00673	00670	00668	4. 2
0.00665	00662	00659	00657	00654	00651	00648	00646	00643	00640	00637	00635	1" = 1
00632	00629	00627	00624	00621	00618	00616	00613	00610	00608	00605	00602	2. 1
00600	00597	00595	00592	00589	00587	00584	00581	00579	00576	00574	00571	3. 2
00568	00566	00563	00561	00558	00556	00553	00551	00548	00546	00543	00541	4. 2
0.00538	00536	00533	00531	00528	00526	00523	00521	00518	00516	00513	00511	1" = 0
00508	00506	00504	00501	00499	00496	00494	00492	00489	00487	00484	00482	2. 1
00480	00477	00475	00473	00470	00468	00466	00463	00461	00459	00456	00454	3. 1
00452	00450	00447	00445	00443	00440	00438	00436	00434	00431	00429	00427	4. 2
0.00425	00423	00420	00418	00416	00414	00412	00409	00407	00405	00403	00401	1" = 0
00399	00396	00394	00392	00390	00388	00386	00384	00382	00379	00377	00375	2. 1
00373	00371	00369	00367	00365	00363	00361	00359	00357	00355	00353	00351	3. 1
00349	00347	00345	00343	00341	00339	00337	00335	00333	00331	00329	00327	4. 2
0.00325	00323	00321	00319	00317	00315	00313	00312	00310	00308	00306	00304	1" = 0
00302	00300	00298	00297	00295	00293	00291	00289	00287	00286	00284	00282	2. 1
00280	00278	00277	00275	00273	00271	00269	00267	00266	00264	00262	00261	3. 1
00259	00257	00256	00254	00252	00250	00249	00247	00245	00244	00242	00240	4. 2
0.00239	00237	00235	00234	00232	00230	00229	00227	00226	00224	00222	00221	1" = 0
00219	00218	00216	00214	00213	00211	00210	00208	00207	00205	00204	00202	2. 1
00200	00199	00197	00196	00194	00193	00191	00190	00188	00187	00186	00184	3. 1
00183	00181	00180	00178	00177	00175	00174	00173	00171	00170	00168	00167	4. 1
0.00166	00164	00163	00162	00160	00159	00157	00156	00155	00153	00152	00151	1" = 0
00149	00148	00147	00146	00144	00143	00142	00140	00139	00138	00137	00135	2. 1
00134	00133	00132	00130	00129	00128	00127	00126	00124	00123	00122	00121	3. 1
00120	00118	00117	00116	00115	00114	00113	00112	00110	00109	00108	00107	4. 1
0.00106	00105	00104	00103	00102	00101	00099	00098	00097	00096	00095	00094	1" = 0
00093	00092	00091	00090	00089	00088	00087	00086	00085	00084	00083	00082	2. 0
00081	00080	00079	00078	00077	00076	00075	00074	00073	00072	00071	00070	3. 1
00070	00069	00068	00067	00066	00066	00065	00064	00063	00062	00061	00060	4. 1
0.00060	00059	00058	00057	00056	00055	00054	00053	00052	00051	00050	00049	1" = 0
00050	00049	00049	00048	00047	00046	00045	00044	00044	00043	00042	00041	2. 0
00041	00041	00040	00039	00039	00038	00037	00037	00036	00035	00035	00034	3. 0
00034	00033	00032	00032	00031	00031	00030	00029	00029	00028	00027	00027	4. 1
0.00027	00026	00025	00025	00024	00024	00023	00023	00022	00022	00021	00021	1" = 0
00020	00020	00019	00019	00018	00018	00017	00017	00016	00016	00016	00015	2. 0
00015	00015	00014	00014	00013	00013	00013	00012	00012	00011	00011	00011	3. 0
00010	00010	00010	00009	00009	00009	00008	00008	00008	00008	00007	00007	4. 1
0.00007	00006	00006	00006	00006	00005	00005	00005	00005	00004	00004	00004	1" = 0
00004	00004	00003	00003	00003	00003	00003	00002	00002	00002	00002	00002	2. 0
00002	00002	00001	00001	00001	00001	00001	00001	00001	00001	00001	00001	3. 0
00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	4. 0
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proport. parts.
5 HOURS.												

LOGARITHMIC MIDDLE TIME.

1 HOUR.											Proper parts.
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
71462	71520	71579	71638	71696	71755	71813	71871	71930	71988	72046	1" = 11
72162	72219	72277	72335	72392	72450	72507	72564	72622	72679	72736	2. 22
72850	72907	72963	73020	73077	73133	73190	73246	73302	73358	73414	3. 34
73526	73582	73638	73694	73749	73805	73861	73916	73971	74027	74082	4. 45
74192	74247	74302	74356	74411	74466	74521	74575	74629	74684	74738	1" = 11
74846	74900	74955	75008	75062	75116	75170	75223	75277	75330	75384	2. 22
75491	75544	75597	75650	75703	75756	75809	75861	75914	75967	76019	3. 32
76124	76177	76229	76281	76333	76385	76437	76489	76541	76593	76645	4. 43
76748	76800	76851	76903	76954	77005	77057	77108	77159	77210	77261	1" = 10
77362	77413	77464	77514	77565	77616	77666	77716	77767	77817	77867	2. 20
77967	78017	78067	78117	78167	78217	78266	78316	78365	78415	78464	3. 30
78563	78612	78661	78710	78760	78809	78858	78906	78955	79004	79053	4. 40
79150	79198	79247	79295	79344	79392	79440	79488	79536	79584	79632	1" = 10
79728	79776	79824	79871	79919	79966	80014	80061	80109	80156	80203	2. 19
80298	80345	80392	80439	80486	80533	80580	80626	80673	80720	80766	3. 29
80859	80906	80952	80999	81045	81091	81137	81183	81229	81275	81321	4. 38
81413	81459	81505	81550	81596	81641	81687	81732	81778	81823	81868	1" = 9
81959	82004	82049	82094	82139	82184	82229	82274	82319	82363	82408	2. 18
82497	82542	82586	82630	82675	82719	82763	82808	82852	82896	82940	3. 27
83028	83072	83116	83159	83203	83247	83291	83334	83378	83421	83465	4. 36
83552	83595	83638	83681	83725	83768	83811	83854	83897	83940	83983	1" = 9
84068	84111	84154	84196	84239	84281	84324	84366	84409	84451	84493	2. 17
84578	84620	84662	84704	84746	84788	84830	84872	84914	84956	84997	3. 26
85081	85122	85164	85205	85247	85288	85330	85371	85412	85454	85495	4. 34
85577	85618	85659	85700	85741	85782	85823	85864	85904	85945	85986	1" = 8
86067	86108	86148	86188	86229	86269	86310	86350	86390	86430	86470	2. 16
86551	86591	86631	86671	86710	86750	86790	86830	86870	86909	86949	3. 24
87028	87068	87107	87147	87186	87225	87265	87304	87343	87382	87421	4. 32
87500	87539	87578	87617	87656	87694	87733	87772	87811	87849	87888	1" = 8
87965	88004	88042	88081	88119	88158	88196	88234	88272	88311	88349	2. 15
88425	88463	88501	88539	88577	88615	88653	88691	88729	88766	88804	3. 23
88879	88917	88954	88992	89030	89067	89104	89142	89179	89216	89254	4. 31
89328	89365	89402	89439	89476	89513	89550	89587	89624	89661	89698	1" = 7
89771	89808	89845	89881	89918	89954	89991	90027	90064	90100	90137	2. 15
90209	90246	90282	90318	90354	90390	90426	90462	90498	90534	90570	3. 22
90642	90678	90714	90749	90785	90821	90857	90892	90928	90963	90999	4. 29
91070	91105	91141	91176	91211	91247	91282	91317	91352	91387	91422	1" = 7
91493	91527	91563	91597	91632	91667	91702	91737	91772	91806	91841	2. 14
91910	91945	91980	92014	92049	92083	92117	92152	92186	92221	92255	3. 21
92323	92358	92392	92426	92460	92494	92528	92562	92596	92630	92664	4. 28
92732	92765	92799	92833	92867	92900	92934	92968	93001	93035	93068	1" = 7
93135	93169	93202	93236	93269	93302	93336	93369	93402	93435	93468	2. 13
93535	93568	93601	93634	93667	93700	93732	93765	93798	93831	93864	3. 20
93929	93962	93995	94027	94060	94092	94125	94157	94190	94222	94255	4. 26
94320	94352	94384	94416	94449	94481	94513	94545	94577	94609	94642	1" = 6
94706	94738	94770	94801	94833	94865	94897	94929	94961	94992	95024	2. 13
95087	95119	95151	95182	95214	95245	95277	95308	95340	95371	95402	3. 19
95465	95496	95528	95559	95590	95621	95652	95683	95715	95746	95777	4. 25
95839	95870	95901	95931	95962	95993	96024	96055	96086	96116	96147	1" = 6
96208	96239	96269	96300	96331	96361	96392	96422	96452	96483	96513	2. 12
96574	96604	96634	96665	96695	96725	96755	96785	96816	96846	96876	3. 18
96936	96966	96996	97025	97055	97085	97115	97145	97175	97204	97234	4. 24
97294	97323	97353	97383	97412	97442	97471	97501	97530	97560	97589	1" = 6
97648	97677	97707	97736	97765	97794	97824	97853	97882	97911	97940	2. 12
97998	98027	98056	98085	98114	98143	98172	98201	98230	98259	98288	3. 17
98345	98374	98403	98431	98460	98489	98517	98546	98575	98603	98632	4. 23
98689	98717	98746	98774	98802	98831	98859	98887	98916	98944	98972	1" = 6
99028	99057	99085	99113	99141	99169	99197	99225	99253	99281	99309	2. 11
99365	99393	99421	99448	99476	99504	99532	99559	99587	99615	99643	3. 17
99698	99725	99753	99780	99808	99835	99863	99890	99918	99945	99973	4. 23
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proper parts.

1 HOUR.

LOGARITHMIC MIDDLE TIME.

Minutes	2 HOURS.											
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	6.00000	00027	00055	00082	00109	00137	00164	00191	00218	00245	00272	00300
1	00327	00354	00381	00408	00435	00462	00489	00516	00542	00569	00596	00623
2	00650	00677	00703	00730	00757	00784	00810	00837	00864	00890	00917	00943
3	00970	00997	01023	01050	01076	01103	01129	01155	01182	01208	01234	01261
4	6.01287	01313	01339	01366	01392	01418	01444	01470	01496	01523	01549	01575
5	01601	01627	01653	01679	01705	01731	01757	01782	01808	01834	01860	01886
6	01912	01937	01963	01989	02014	02040	02066	02091	02117	02143	02168	02194
7	02219	02245	02270	02296	02321	02347	02372	02397	02423	02448	02473	02499
8	6.02524	02549	02574	02600	02625	02650	02675	02700	02725	02751	02776	02801
9	02826	02851	02876	02901	02926	02951	02976	03001	03025	03050	03075	03100
10	03125	03149	03174	03199	03224	03248	03273	03298	03322	03347	03372	03396
11	03421	03445	03470	03494	03519	03543	03568	03592	03616	03641	03665	03690
12	6.03714	03738	03762	03787	03811	03835	03859	03884	03908	03932	03956	03980
13	04004	04028	04052	04077	04100	04125	04148	04172	04196	04220	04244	04268
14	04292	04316	04340	04363	04387	04411	04435	04459	04482	04506	04530	04553
15	04577	04601	04624	04648	04671	04695	04718	04742	04765	04789	04812	04836
16	6.04859	04883	04906	04929	04953	04976	04999	05023	05046	05069	05092	05116
17	05139	05162	05185	05208	05231	05255	05278	05301	05324	05347	05370	05393
18	05416	05439	05462	05485	05508	05531	05553	05576	05599	05622	05645	05668
19	05690	05713	05736	05758	05781	05804	05827	05849	05872	05894	05917	05940
20	6.05962	05985	06007	06030	06052	06075	06097	06120	06142	06164	06187	06209
21	06232	06254	06276	06299	06321	06343	06365	06388	06410	06432	06454	06476
22	06498	06521	06543	06565	06587	06609	06631	06653	06675	06697	06719	06741
23	06763	06785	06807	06829	06850	06872	06894	06916	06938	06960	06981	07003
24	6.07025	07047	07068	07090	07112	07133	07155	07176	07198	07220	07241	07263
25	07284	07306	07328	07349	07371	07392	07413	07435	07456	07477	07499	07520
26	07542	07563	07584	07606	07627	07648	07670	07691	07712	07733	07754	07776
27	07797	07818	07839	07860	07881	07902	07923	07944	07965	07986	08007	08028
28	6.08049	08070	08091	08112	08133	08154	08175	08196	08216	08237	08258	08279
29	08300	08320	08341	08362	08383	08403	08424	08445	08465	08486	08507	08527
30	08548	08568	08589	08609	08630	08650	08671	08691	08712	08732	08753	08773
31	08794	08814	08834	08855	08875	08895	08916	08936	08956	08977	08997	09017
32	6.09037	09057	09078	09098	09118	09138	09158	09178	09198	09219	09239	09259
33	09279	09299	09319	09339	09359	09379	09399	09419	09438	09458	09478	09498
34	09518	09538	09558	09577	09597	09617	09637	09657	09676	09696	09716	09735
35	09755	09775	09794	09814	09834	09853	09873	09893	09912	09932	09951	09971
36	6.09990	10010	10029	10049	10068	10088	10107	10126	10146	10165	10184	10204
37	10223	10243	10262	10281	10300	10320	10339	10358	10377	10397	10416	10435
38	10454	10473	10492	10512	10531	10550	10569	10588	10607	10626	10645	10664
39	10683	10702	10721	10740	10759	10778	10797	10816	10834	10853	10872	10891
40	6.10910	10929	10947	10966	10985	11004	11022	11041	11060	11079	11097	11116
41	11135	11153	11172	11190	11209	11228	11246	11265	11283	11302	11320	11339
42	11357	11376	11394	11413	11431	11450	11468	11487	11505	11523	11542	11560
43	11578	11597	11615	11633	11652	11670	11688	11706	11725	11743	11761	11779
44	6.11797	11815	11834	11852	11870	11888	11906	11924	11942	11960	11978	11996
45	12014	12032	12050	12068	12086	12104	12122	12140	12158	12176	12194	12212
46	12229	12247	12265	12283	12301	12319	12336	12354	12372	12390	12407	12425
47	12443	12460	12478	12496	12513	12531	12549	12566	12584	12601	12619	12637
48	6.12654	12672	12689	12707	12724	12742	12759	12777	12794	12811	12829	12846
49	12864	12881	12898	12916	12933	12950	12968	12985	13002	13020	13037	13054
50	13071	13089	13106	13123	13140	13157	13175	13192	13209	13226	13243	13260
51	13277	13294	13311	13328	13345	13363	13380	13397	13413	13431	13447	13464
52	6.13481	13498	13515	13532	13549	13566	13583	13600	13616	13633	13650	13667
53	13684	13700	13717	13734	13751	13767	13784	13801	13818	13834	13851	13868
54	13884	13901	13917	13934	13951	13967	13984	14000	14017	14034	14050	14067
55	14083	14100	14116	14133	14149	14165	14182	14198	14215	14231	14247	14264
56	6.14280	14297	14313	14329	14345	14362	14378	14394	14411	14427	14443	14459
57	14476	14492	14508	14524	14540	14556	14573	14589	14605	14621	14637	14653
58	14669	14685	14701	14717	14733	14749	14765	14781	14797	14813	14829	14845
59	14861	14877	14893	14909	14925	14941	14957	14972	14988	15004	15020	15036
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'

2 HOURS.

LOGARITHMIC MIDDLE TIME.

3 HOURS.												Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
6. 15051	15067	15083	15099	15115	15130	15146	15162	15177	15193	15209	15225	1' = 3
15240	15256	15271	15287	15303	15318	15334	15350	15365	15381	15396	15412	2. 6
15427	15443	15458	15474	15489	15505	15520	15536	15551	15566	15582	15597	3. 9
15613	15628	15643	15659	15674	15689	15705	15720	15735	15751	15766	15781	4. 12
6. 15796	15812	15827	15842	15857	15873	15888	15903	15918	15933	15948	15964	1 = 3
15979	15994	16009	16024	16039	16054	16069	16084	16099	16114	16129	16144	2. 6
16159	16174	16189	16204	16219	16234	16249	16264	16279	16294	16309	16323	3. 9
16338	16353	16368	16383	16398	16412	16427	16442	16457	16472	16486	16501	4. 12
6. 16516	16531	16545	16560	16575	16589	16604	16619	16633	16648	16662	16677	1 = 3
16692	16706	16721	16735	16750	16765	16779	16794	16808	16823	16837	16852	2. 6
16866	16881	16895	16909	16924	16938	16953	16967	16982	16996	17010	17025	3. 9
17039	17053	17068	17082	17096	17111	17125	17139	17153	17168	17182	17196	4. 12
6. 17210	17225	17239	17253	17267	17281	17295	17310	17324	17338	17352	17366	1 = 3
17380	17394	17408	17423	17437	17451	17465	17479	17493	17507	17521	17535	2. 6
17549	17563	17577	17591	17604	17618	17632	17646	17660	17674	17688	17702	3. 8
17716	17729	17743	17757	17771	17785	17798	17812	17826	17840	17854	17867	4. 11
6. 17881	17895	17908	17922	17936	17950	17963	17977	17990	18004	18018	18031	1 = 3
18045	18059	18072	18086	18099	18113	18126	18140	18154	18167	18181	18194	2. 5
18208	18221	18235	18248	18261	18275	18288	18302	18315	18329	18342	18355	3. 8
18369	18382	18395	18409	18422	18435	18449	18462	18475	18489	18502	18515	4. 11
6. 18528	18542	18555	18568	18581	18595	18608	18621	18634	18647	18660	18674	1 = 3
18687	18700	18713	18726	18739	18752	18765	18778	18791	18805	18818	18831	2. 5
18844	18857	18870	18883	18896	18909	18922	18935	18947	18960	18973	18986	3. 8
18999	19012	19025	19038	19051	19064	19076	19089	19102	19115	19128	19141	4. 10
6. 19153	19166	19179	19192	19204	19217	19230	19243	19255	19268	19281	19293	1 = 3
19306	19319	19331	19344	19357	19369	19382	19395	19407	19420	19432	19445	2. 5
19457	19470	19483	19495	19508	19520	19533	19545	19558	19570	19583	19595	3. 8
19607	19620	19632	19645	19657	19670	19682	19694	19707	19719	19732	19744	4. 10
6. 19756	19769	19781	19793	19805	19818	19830	19842	19855	19867	19879	19891	1 = 2
19904	19916	19928	19940	19952	19965	19977	19989	20001	20013	20025	20038	2. 5
20050	20062	20074	20086	20098	20110	20122	20134	20146	20158	20170	20182	3. 7
20194	20206	20218	20230	20242	20254	20266	20278	20290	20302	20314	20326	4. 10
6. 20338	20350	20362	20374	20385	20397	20409	20421	20433	20445	20456	20468	1 = 2
20480	20492	20504	20515	20527	20539	20551	20562	20574	20586	20597	20609	2. 5
20621	20633	20644	20656	20668	20679	20691	20703	20714	20726	20737	20749	3. 7
20760	20772	20784	20795	20807	20818	20830	20841	20853	20864	20876	20887	4. 9
6. 20899	20910	20922	20933	20945	20956	20967	20979	20990	21002	21013	21024	1 = 2
21036	21047	21059	21070	21081	21093	21104	21115	21126	21138	21149	21160	2. 5
21172	21183	21194	21205	21217	21228	21239	21250	21261	21273	21284	21295	3. 7
21306	21317	21328	21340	21351	21362	21373	21384	21395	21406	21417	21428	4. 9
6. 21439	21451	21462	21473	21484	21495	21506	21517	21528	21539	21550	21561	1 = 2
21572	21583	21593	21604	21615	21626	21637	21648	21659	21670	21681	21692	2. 4
21703	21713	21724	21735	21746	21757	21767	21778	21789	21800	21810	21821	3. 7
21832	21843	21853	21864	21875	21886	21896	21907	21918	21928	21939	21950	4. 9
6. 21960	21971	21982	21992	22003	22014	22024	22034	22045	22056	22067	22077	1 = 2
22088	22098	22109	22119	22130	22140	22151	22161	22172	22182	22193	22203	2. 4
22214	22224	22235	22245	22255	22266	22276	22287	22297	22307	22318	22328	3. 6
22338	22349	22359	22370	22380	22390	22400	22411	22421	22431	22442	22452	4. 8
6. 22462	22472	22483	22493	22503	22513	22524	22534	22544	22554	22564	22574	1 = 2
22585	22595	22605	22615	22625	22635	22645	22656	22666	22676	22686	22696	2. 4
22706	22716	22726	22736	22746	22756	22766	22776	22786	22796	22806	22816	3. 6
22826	22836	22846	22856	22866	22876	22886	22896	22906	22915	22925	22935	4. 8
6. 22945	22955	22965	22975	22984	22994	23004	23014	23024	23034	23043	23053	1 = 2
23063	23073	23082	23092	23102	23112	23121	23131	23141	23151	23160	23170	2. 4
23180	23189	23199	23209	23218	23228	23237	23247	23257	23266	23276	23286	3. 6
23295	23305	23314	23324	23333	23343	23352	23362	23372	23381	23391	23400	4. 8
6. 23410	23419	23429	23438	23447	23457	23466	23476	23485	23495	23504	23514	1 = 2
23523	23532	23542	23551	23560	23570	23579	23588	23598	23607	23616	23626	2. 4
23635	23644	23654	23663	23672	23681	23691	23700	23709	23718	23728	23737	3. 5
23746	23755	23765	23774	23783	23792	23801	23810	23820	23829	23838	23847	4. 7
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proport. parts.
3 HOURS.												

3 HOURS.

LOGARITHMIC MIDDLE TIME.

4 HOURS.													
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
0	6. 23856	23865	23874	23883	23892	23902	23911	23920	23929	23938	23947	23956	23965
1	23965	23974	23983	23992	24001	24010	24019	24028	24037	24046	24055	24064	24073
2	24073	24082	24091	24099	24108	24117	24126	24135	24144	24153	24162	24171	24180
3	24179	24188	24197	24206	24215	24224	24232	24241	24250	24259	24267	24276	24285
4	6. 24285	24294	24302	24311	24320	24329	24337	24346	24355	24363	24372	24381	24390
5	24389	24398	24407	24415	24424	24433	24441	24450	24458	24467	24476	24485	24493
6	24493	24501	24510	24519	24527	24536	24544	24553	24561	24570	24578	24587	24595
7	24595	24604	24612	24621	24629	24638	24646	24654	24663	24671	24680	24688	24696
8	6. 24696	24705	24713	24722	24730	24738	24747	24755	24763	24772	24780	24788	24797
9	24797	24805	24813	24822	24830	24838	24846	24855	24863	24871	24879	24888	24896
10	24896	24904	24912	24921	24929	24937	24945	24953	24961	24970	24978	24986	24994
11	24994	25002	25010	25018	25026	25035	25043	25051	25059	25067	25075	25083	25091
12	6. 25091	25099	25107	25115	25123	25131	25139	25147	25155	25163	25171	25179	25187
13	25187	25195	25203	25211	25219	25227	25235	25243	25251	25259	25267	25275	25283
14	25282	25290	25298	25306	25314	25321	25329	25337	25345	25353	25360	25368	25376
15	25376	25384	25392	25399	25407	25415	25423	25430	25438	25446	25454	25461	25469
16	6. 25469	25477	25484	25492	25500	25507	25515	25523	25530	25538	25546	25553	25561
17	25561	25569	25576	25584	25591	25599	25607	25614	25622	25629	25637	25644	25652
18	25652	25659	25667	25674	25682	25689	25697	25704	25712	25719	25727	25734	25742
19	25742	25749	25757	25764	25771	25779	25786	25794	25801	25808	25816	25823	25831
20	6. 25831	25838	25845	25853	25860	25867	25875	25882	25889	25897	25904	25911	25918
21	25918	25926	25933	25940	25947	25955	25962	25969	25976	25984	25991	25998	26005
22	26005	26013	26020	26027	26034	26041	26048	26056	26063	26070	26077	26084	26091
23	26091	26098	26105	26113	26120	26127	26134	26141	26148	26155	26162	26169	26176
24	6. 26176	26183	26190	26197	26204	26211	26218	26225	26232	26239	26246	26253	26260
25	26260	26267	26274	26281	26288	26295	26301	26308	26315	26322	26329	26336	26343
26	26343	26350	26356	26363	26370	26377	26384	26391	26397	26404	26411	26418	26425
27	26425	26432	26438	26445	26452	26459	26465	26472	26479	26486	26492	26499	26506
28	6. 26506	26512	26519	26526	26532	26539	26546	26552	26559	26566	26572	26579	26586
29	26586	26592	26599	26605	26612	26619	26625	26632	26638	26645	26651	26658	26665
30	26665	26671	26678	26684	26691	26697	26704	26710	26717	26723	26730	26736	26743
31	26743	26749	26755	26762	26768	26775	26781	26788	26794	26800	26807	26813	26820
32	6. 26820	26826	26832	26839	26845	26851	26858	26864	26870	26877	26883	26889	26896
33	26896	26902	26908	26915	26921	26927	26933	26940	26946	26952	26958	26964	26971
34	26971	26977	26983	26989	26996	27002	27008	27014	27020	27027	27033	27039	27045
35	27045	27051	27057	27063	27069	27076	27082	27088	27094	27100	27106	27112	27118
36	6. 27118	27124	27130	27136	27142	27148	27154	27160	27166	27172	27178	27184	27190
37	27190	27196	27202	27208	27214	27220	27226	27232	27238	27244	27250	27256	27262
38	27262	27268	27274	27279	27285	27291	27297	27303	27309	27315	27320	27326	27332
39	27332	27338	27344	27350	27355	27361	27367	27373	27379	27384	27390	27396	27402
40	6. 27402	27407	27413	27419	27425	27430	27436	27442	27447	27453	27459	27464	27470
41	27470	27476	27481	27487	27493	27498	27504	27510	27515	27521	27526	27531	27538
42	27538	27543	27549	27554	27560	27566	27571	27577	27582	27588	27593	27599	27604
43	27604	27610	27615	27621	27626	27632	27637	27643	27648	27654	27659	27664	27670
44	6. 27670	27675	27681	27686	27692	27697	27703	27708	27713	27719	27724	27729	27735
45	27735	27740	27746	27751	27756	27762	27767	27772	27777	27783	27788	27793	27799
46	27799	27804	27809	27815	27820	27825	27830	27836	27841	27846	27851	27856	27862
47	27862	27867	27872	27877	27882	27888	27893	27898	27903	27908	27913	27918	27924
48	6. 27924	27929	27934	27939	27944	27949	27954	27959	27964	27970	27975	27980	27985
49	27985	27990	27995	28000	28005	28010	28015	28020	28025	28030	28035	28040	28045
50	28045	28050	28055	28060	28065	28070	28075	28080	28085	28090	28095	28100	28104
51	28104	28109	28114	28119	28124	28129	28134	28138	28143	28148	28153	28158	28163
52	6. 28163	28168	28172	28177	28182	28187	28191	28196	28201	28206	28211	28216	28220
53	28220	28225	28230	28234	28239	28244	28249	28253	28258	28263	28267	28272	28277
54	28277	28281	28286	28291	28295	28300	28305	28309	28314	28319	28323	28328	28332
55	28332	28337	28342	28346	28351	28355	28360	28364	28369	28374	28378	28383	28387
56	6. 28387	28392	28396	28401	28405	28410	28414	28419	28423	28428	28432	28437	28441
57	28441	28446	28450	28454	28459	28463	28468	28472	28476	28481	28485	28489	28494
58	28494	28498	28503	28507	28512	28516	28520	28525	28529	28533	28538	28542	28546
59	28546	28551	28555	28559	28563	28568	28572	28576	28580	28585	28589	28593	28597
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
4 HOURS.													

4 HOURS.

LOGARITHMIC MIDDLE TIME.

5 HOURS.												Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
6. 28597	28602	28606	28610	28614	28619	28623	28627	28631	28635	28639	28644	1" = 1
28648	28652	28656	28660	28664	28668	28673	28677	28681	28685	28689	28693	2. 2
28697	28701	28705	28709	28713	28718	28722	28726	28730	28734	28738	28742	3. 2
28746	28750	28754	28758	28762	28766	28770	28774	28778	28782	28786	28790	4. 4
6. 28793	28797	28801	28805	28809	28813	28817	28821	28825	28829	28833	28836	1 = 1
28840	28844	28848	28852	28856	28860	28863	28867	28871	28875	28879	28882	2. 2
28886	28890	28894	28898	28901	28905	28909	28913	28916	28920	28924	28928	3. 2
28931	28935	28939	28942	28946	28950	28953	28957	28961	28964	28968	28972	4. 4
6. 28975	28979	28983	28986	28990	28994	28997	29001	29004	29008	29012	29015	1 = 1
29019	29022	29026	29029	29033	29037	29040	29044	29047	29051	29054	29058	2. 1
29061	29065	29068	29072	29075	29079	29082	29086	29089	29092	29096	29099	3. 2
29103	29106	29110	29113	29116	29120	29123	29127	29130	29133	29137	29140	4. 3
6. 29143	29147	29150	29154	29157	29160	29163	29167	29170	29173	29177	29180	1 = 1
29183	29187	29190	29193	29196	29200	29203	29206	29209	29213	29216	29219	2. 1
29222	29226	29229	29232	29235	29238	29241	29245	29248	29251	29254	29257	3. 2
29260	29264	29267	29270	29273	29276	29279	29282	29285	29288	29292	29295	4. 3
6. 29298	29301	29304	29307	29310	29313	29316	29319	29322	29325	29328	29331	1 = 1
29334	29337	29340	29343	29346	29349	29352	29355	29358	29361	29364	29367	2. 1
29370	29373	29375	29378	29381	29384	29387	29390	29393	29396	29399	29401	3. 2
29404	29407	29410	29413	29416	29419	29421	29424	29427	29430	29433	29435	4. 2
6. 29438	29441	29444	29447	29449	29452	29455	29458	29460	29463	29466	29468	1 = 1
29471	29474	29477	29479	29482	29485	29487	29490	29493	29495	29498	29501	2. 1
29503	29506	29509	29511	29514	29516	29519	29522	29524	29527	29529	29532	3. 2
29535	29537	29540	29542	29545	29547	29550	29552	29555	29558	29560	29563	4. 2
6. 29565	29568	29570	29573	29575	29577	29580	29582	29585	29587	29590	29592	1 = 0
29595	29597	29599	29602	29604	29607	29609	29611	29614	29616	29619	29621	2. 1
29623	29626	29628	29630	29633	29635	29637	29640	29642	29644	29647	29649	3. 1
29651	29654	29656	29658	29660	29663	29665	29667	29669	29672	29674	29676	4. 2
6. 29678	29681	29683	29685	29687	29689	29691	29694	29696	29698	29700	29702	1 = 0
29704	29707	29709	29711	29713	29715	29717	29719	29721	29724	29726	29728	2. 1
29730	29732	29734	29736	29738	29740	29742	29744	29746	29748	29750	29752	3. 1
29754	29756	29758	29760	29762	29764	29766	29768	29770	29772	29774	29776	4. 2
6. 29778	29780	29782	29784	29786	29788	29790	29791	29793	29795	29797	29799	1 = 0
29801	29803	29805	29807	29808	29810	29812	29814	29816	29818	29819	29821	2. 1
29823	29825	29827	29828	29830	29832	29834	29835	29837	29839	29841	29842	3. 1
29844	29846	29848	29849	29851	29853	29854	29856	29858	29859	29861	29863	4. 2
6. 29864	29866	29868	29869	29871	29873	29874	29876	29878	29879	29881	29882	1 = 0
29884	29886	29887	29889	29890	29892	29893	29895	29896	29898	29900	29901	2. 1
29903	29904	29906	29907	29909	29910	29912	29913	29915	29916	29918	29919	3. 1
29920	29922	29923	29925	29926	29928	29929	29930	29932	29933	29935	29936	4. 1
6. 29937	29939	29940	29942	29943	29944	29946	29947	29948	29950	29951	29952	1 = 0
29954	29955	29956	29958	29959	29960	29961	29963	29964	29965	29966	29968	2. 1
29969	29970	29971	29973	29974	29975	29976	29978	29979	29980	29981	29982	3. 1
29983	29985	29986	29987	29988	29989	29990	29992	29993	29994	29995	29996	4. 1
6. 29997	29998	29999	30000	30001	30003	30004	30005	30006	30007	30008	30009	1 = 0
30010	30011	30012	30013	30014	30015	30016	30017	30018	30019	30020	30021	2. 0
30022	30023	30024	30025	30026	30027	30028	30029	30030	30031	30032	30033	3. 1
30033	30034	30035	30036	30037	30038	30039	30040	30041	30042	30043	30044	4. 1
6. 30043	30044	30045	30046	30047	30048	30048	30049	30050	30051	30051	30052	1 = 0
30053	30054	30054	30055	30056	30057	30057	30058	30059	30060	30060	30061	2. 0
30062	30062	30063	30064	30064	30065	30066	30066	30067	30068	30068	30069	3. 0
30070	30070	30071	30071	30072	30073	30073	30074	30074	30075	30075	30076	4. 1
6. 30077	30077	30078	30078	30079	30079	30080	30080	30081	30081	30082	30082	1 = 0
30083	30083	30084	30084	30085	30085	30086	30086	30086	30087	30087	30088	2. 0
30088	30089	30089	30089	30090	30090	30090	30091	30091	30091	30092	30092	3. 0
30093	30093	30093	30094	30094	30094	30095	30095	30095	30096	30096	30096	4. 1
6. 30096	30097	30097	30097	30097	30098	30098	30098	30098	30099	30099	30099	1 = 0
30099	30100	30100	30100	30100	30100	30100	30101	30101	30101	30101	30101	2. 0
30101	30102	30102	30102	30102	30102	30102	30102	30102	30102	30102	30102	3. 0
30103	30103	30103	30103	30103	30103	30103	30103	30103	30103	30103	30103	4. 0
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proport. parts.
5 HOURS.												Proport. parts.

O

C

LOGARITHMIC RISING.

Minutes	0 HOUR.											
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0		82017	42230	77448	2436	21818	37654	51044	62642	72873	82034	90303
1	0.97860	84813	11250	17242	22848	28114	33099	37775	42230	46468	50509	54370
2	1.58066	61612	65019	68297	71455	74503	77448	80296	83054	85726	88319	90837
3	93284	95664	97980	100236	102535	104780	106973	109117	111214	113266	115275	117243
4	2.18271	20062	21817	23537	25224	26878	28502	30095	31660	33198	34708	36193
5	37653	39088	40501	41890	43258	44605	45931	47237	48524	49792	51041	52273
6	53488	54686	55868	57034	58184	59320	60440	61547	62639	63718	64784	65837
7	66877	67905	68920	69924	70917	71898	72869	73829	74778	75717	76646	77565
8	2.78474	79374	80265	81147	82019	82884	83739	84587	85426	86257	87080	87896
9	88703	89504	90297	91083	91862	92634	93399	94157	94909	95655	96394	97127
10	97854	98574	99289	99998	100701	101399	102091	102777	103458	104134	104805	105470
11	3.06131	06786	07437	08082	08728	09369	09991	10618	11240	11859	12472	13082
12	3.13687	14288	14885	15477	16066	16651	17232	17809	18382	18951	19517	20079
13	20638	21192	21744	22292	22836	23377	23915	24449	24980	25508	26033	26554
14	27073	27588	28100	28609	29116	29619	30120	30617	31112	31604	32093	32579
15	33063	33544	34023	34498	34972	35442	35910	36376	36839	37299	37758	38213
16	3.38667	39118	39567	40013	40457	40899	41339	41776	42211	42644	43075	43504
17	43930	44355	44777	45198	45616	46033	46447	46859	47270	47678	48085	48490
18	48893	49294	49693	50090	50486	50879	51271	51661	52050	52436	52821	53205
19	53586	53966	54344	54721	55096	55469	55841	56211	56580	56947	57313	57676
20	3.58039	58400	58759	59117	59474	59829	60182	60534	60885	61234	61582	61929
21	62274	62618	62960	63302	63641	63979	64316	64652	64987	65320	65652	65982
22	66312	66640	66967	67292	67617	67940	68262	68583	68903	69221	69538	69855
23	70170	70483	70796	71108	71418	71728	72036	72343	72649	72954	73258	73561
24	3.73863	74164	74464	74762	75060	75357	75652	75947	76241	76533	76825	77116
25	77405	77694	77982	78269	78555	78840	79124	79407	79689	79970	80251	80530
26	80809	81086	81363	81639	81914	82188	82461	82734	83005	83276	83546	83815
27	84083	84350	84617	84883	85148	85412	85675	85937	86199	86460	86720	86979
28	3.87238	87496	87753	88009	88265	88519	88773	89027	89279	89531	89782	90033
29	90282	90531	90779	91027	91273	91520	91765	92010	92254	92497	92739	92981
30	93223	93463	93703	93942	94181	94419	94656	94893	95129	95364	95599	95833
31	96067	96299	96532	96763	96994	97224	97454	97683	97912	98140	98367	98594
32	3.98820	99045	99270	99495	99719	99942	100164	100386	100608	100829	101049	101269
33	4.01488	01707	01925	02143	02360	02576	02792	03008	03222	03437	03651	03864
34	04077	04289	04501	04712	04922	05133	05342	05551	05760	05968	06176	06383
35	06590	06796	07001	07207	07411	07616	07819	08023	08225	08428	08629	08831
36	4.09032	09232	09432	09632	09831	10029	10227	10425	10622	10819	11015	11211
37	11406	11601	11796	11990	12184	12377	12570	12762	12954	13146	13337	13528
38	13718	13908	14097	14286	14475	14663	14850	15038	15225	15411	15597	15783
39	15969	16154	16338	16522	16706	16889	17072	17255	17437	17619	17800	17982
40	4.18162	18343	18522	18702	18881	19060	19238	19417	19594	19771	19949	20125
41	20301	20477	20653	20828	21003	21177	21351	21525	21699	21872	22044	22217
42	22389	22560	22732	22903	23073	23244	23414	23583	23753	23922	24090	24259
43	24427	24594	24762	24929	25095	25262	25428	25594	25759	25924	26089	26253
44	4.26418	26581	26745	26908	27071	27234	27396	27558	27720	27881	28042	28203
45	28363	28524	28683	28843	29002	29161	29320	29478	29637	29794	29952	30109
46	30266	30423	30579	30735	30891	31047	31202	31357	31512	31666	31820	31974
47	32128	32281	32434	32587	32739	32892	33044	33195	33347	33498	33649	33800
48	4.33950	34100	34250	34400	34549	34698	34847	34995	35144	35292	35439	35587
49	35734	35881	36028	36175	36321	36467	36613	36758	36903	37048	37193	37338
50	37482	37626	37770	37914	38057	38200	38343	38486	38628	38770	38912	39054
51	39195	39336	39477	39618	39759	39899	40039	40179	40319	40458	40597	40736
52	4.40875	41013	41152	41290	41427	41565	41702	41839	41976	42113	42250	42386
53	42522	42658	42794	42929	43064	43199	43334	43469	43603	43737	43871	44005
54	44138	44272	44405	44537	44670	44803	44935	45067	45199	45331	45462	45593
55	45724	45855	45986	46116	46247	46377	46507	46636	46766	46895	47024	47153
56	4.47282	47410	47539	47667	47795	47923	48050	48177	48305	48432	48558	48685
57	48811	48938	49064	49190	49315	49441	49566	49691	49816	49941	50066	50190
58	50314	50438	50562	50686	50809	50933	51056	51179	51301	51424	51547	51669
59	51791	51913	52035	52156	52278	52399	52520	52641	52761	52882	53002	53122
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'

0 HOUR.

LOGARITHMIC RISING.

1 HOUR.												Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
4.53243	53362	53482	53602	53721	53840	53959	54078	54197	54315	54434	54552	1" = 23
54670	54788	54905	55023	55140	55258	55375	55492	55608	55725	55841	55958	2. 47
56074	56190	56306	56421	56537	56652	56767	56882	56997	57112	57226	57341	3. 70
57455	57569	57683	57797	57910	58024	58137	58250	58363	58476	58589	58702	4. 94
4.58814	58926	59038	59150	59262	59374	59486	59597	59708	59819	59930	60041	1 = 22
60152	60262	60373	60483	60593	60703	60813	60923	61032	61143	61251	61360	2. 44
61469	61578	61686	61795	61903	62012	62120	62228	62336	62443	62551	62659	3. 66
62766	62873	62980	63087	63194	63301	63407	63513	63620	63726	63832	63938	4. 88
4.64043	64149	64254	64360	64465	64570	64675	64780	64885	64989	65094	65198	1 = 21
65302	65406	65510	65614	65717	65821	65924	66028	66131	66234	66337	66440	2. 42
66542	66645	66747	66849	66952	67054	67156	67257	67359	67461	67562	67663	3. 62
67765	67866	67967	68067	68168	68269	68369	68469	68570	68670	68770	68870	4. 83
4.68969	69069	69169	69268	69367	69467	69566	69665	69763	69862	69961	70059	1 = 20
70158	70256	70354	70452	70550	70648	70745	70843	70940	71038	71135	71232	2. 39
71329	71426	71523	71620	71716	71813	71909	72005	72101	72197	72294	72389	3. 59
72485	72580	72676	72771	72867	72962	73057	73152	73247	73341	73436	73530	4. 78
4.73025	73119	73213	73307	73401	73495	73589	73683	73776	73870	73963	74057	1 = 19
74150	74243	74336	74429	74521	74614	74707	74799	74891	74984	75076	75168	2. 37
75260	75352	75443	75535	75627	75718	75809	75901	75992	76083	76174	76265	3. 56
76355	76446	76537	76627	76718	76808	76898	76988	77078	77168	77258	77347	4. 74
4.78037	78127	78216	78305	78395	78484	78573	78662	78750	78839	78928	79016	1 = 18
79105	79193	79282	79370	79458	79546	79634	79722	79809	79897	79985	80072	2. 35
80159	80247	80334	80421	80508	80595	80682	80768	80855	80942	81028	81115	3. 53
81201	81287	81373	81459	81545	81631	81717	81802	81888	81974	82059	82144	4. 70
4.82230	82315	82400	82485	82570	82655	82739	82824	82908	82993	83077	83162	1 = 17
83246	83330	83414	83498	83582	83666	83749	83833	83917	84000	84083	84167	2. 34
84250	84333	84416	84499	84582	84665	84748	84830	84913	84995	85078	85160	3. 50
85242	85324	85406	85488	85570	85652	85734	85816	85897	85979	86060	86141	4. 67
4.86223	86304	86385	86466	86547	86628	86709	86790	86870	86951	87031	87112	1 = 16
87192	87272	87352	87433	87513	87593	87672	87752	87832	87912	87991	88071	2. 32
88150	88229	88308	88388	88467	88546	88625	88704	88783	88862	88940	89019	3. 48
89097	89176	89254	89333	89411	89489	89567	89645	89723	89801	89879	89956	4. 64
4.90034	90112	90189	90267	90344	90421	90498	90576	90653	90730	90807	90884	1 = 15
90960	91037	91114	91190	91267	91343	91420	91496	91572	91648	91724	91800	2. 30
91876	91952	92028	92104	92179	92255	92331	92406	92482	92557	92632	92707	3. 46
92782	92858	92933	93007	93082	93157	93232	93306	93381	93456	93530	93605	4. 61
4.93679	93753	93827	93901	93975	94049	94123	94197	94271	94345	94418	94492	1 = 15
94566	94639	94712	94786	94859	94932	95005	95078	95152	95224	95297	95370	2. 29
95443	95515	95588	95661	95733	95806	95878	95950	96023	96095	96167	96239	3. 44
96311	96383	96455	96527	96599	96670	96742	96813	96885	96956	97028	97099	4. 58
4.97170	97242	97313	97384	97455	97526	97597	97667	97738	97809	97880	97950	1 = 14
98021	98091	98162	98232	98302	98372	98443	98513	98583	98653	98723	98793	2. 28
98862	98932	99002	99072	99141	99211	99280	99350	99419	99488	99557	99627	3. 42
99696	99765	99834	99903	99972	100040	100109	100178	100247	100315	100384	100452	4. 56
5.00521	00589	00657	00726	00794	00862	00930	00998	01066	01134	01202	01270	1 = 13
01337	01405	01473	01540	01608	01675	01743	01810	01877	01945	02012	02079	2. 27
02146	02213	02280	02347	02414	02481	02547	02614	02681	02747	02814	02880	3. 40
02947	03013	03080	03146	03212	03278	03344	03411	03477	03543	03608	03674	4. 54
5.03740	03806	03871	03937	04003	04068	04134	04199	04265	04330	04395	04460	1 = 13
04526	04591	04656	04721	04786	04851	04916	04980	05045	05110	05175	05239	2. 26
05304	05368	05433	05497	05561	05626	05690	05754	05818	05882	05946	06010	3. 39
06074	06138	06202	06266	06330	06393	06457	06521	06584	06648	06711	06775	4. 52
5.06838	06901	06965	07028	07091	07154	07217	07280	07343	07406	07469	07532	1 = 13
07595	07657	07720	07783	07845	07908	07970	08033	08095	08157	08220	08282	2. 25
08344	08406	08468	08530	08592	08654	08716	08778	08840	08902	08964	09025	3. 38
09087	09148	09210	09272	09333	09394	09456	09517	09578	09640	09701	09762	4. 50
5.09823	09884	09945	10006	10067	10128	10188	10249	10310	10371	10431	10492	1 = 13
10552	10613	10673	10734	10794	10854	10915	10975	11035	11095	11155	11215	2. 24
11275	11335	11395	11455	11515	11575	11634	11694	11754	11813	11873	11932	3. 36
11992	12051	12111	12170	12229	12289	12348	12407	12466	12525	12584	12643	4. 48
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proport. parts.
1 HOUR.												

LOGARITHMIC RISING.

Minutes	4 HOURS.												
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
0	5.69897	69924	69952	69979	70006	70034	70061	70088	70115	70143	70170	70197	
1	70224	70252	70279	70306	70333	70360	70387	70415	70442	70469	70496	70523	
2	70550	70577	70604	70631	70658	70685	70712	70739	70766	70793	70820	70847	
3	70874	70901	70928	70955	70982	71009	71036	71063	71089	71116	71143	71170	
4	5.71197	71224	71250	71277	71304	71331	71357	71384	71411	71438	71464	71491	
5	71518	71544	71571	71598	71624	71651	71678	71704	71731	71757	71784	71810	
6	71837	71864	71890	71917	71943	71970	71996	72023	72049	72075	72102	72128	
7	72155	72181	72208	72234	72260	72287	72313	72339	72366	72392	72418	72445	
8	5.72471	72497	72523	72550	72576	72602	72628	72655	72681	72707	72733	72759	
9	72785	72812	72838	72864	72890	72916	72942	72968	72994	73020	73046	73072	
10	73099	73125	73151	73177	73203	73228	73254	73280	73306	73332	73358	73384	
11	73410	73436	73462	73488	73514	73539	73565	73591	73617	73643	73668	73694	
12	5.73720	73746	73772	73797	73823	73849	73874	73900	73926	73951	73977	74003	
13	74028	74054	74080	74105	74131	74157	74182	74208	74233	74259	74284	74310	
14	74335	74361	74386	74412	74437	74463	74488	74514	74539	74565	74590	74616	
15	74641	74666	74692	74717	74742	74768	74793	74818	74844	74869	74894	74920	
16	5.74945	74970	74995	75021	75046	75071	75096	75122	75147	75172	75197	75222	
17	75247	75273	75298	75323	75348	75373	75398	75423	75448	75473	75498	75523	
18	75549	75574	75599	75624	75649	75674	75699	75723	75748	75773	75798	75823	
19	75848	75873	75898	75923	75948	75973	75997	76022	76047	76072	76097	76121	
20	5.76146	76171	76196	76221	76245	76270	76295	76320	76344	76369	76394	76418	
21	76443	76468	76492	76517	76542	76566	76591	76615	76640	76665	76689	76714	
22	76738	76763	76787	76812	76836	76861	76885	76910	76934	76959	76983	77008	
23	77032	77057	77081	77105	77130	77154	77179	77203	77227	77252	77276	77300	
24	5.77325	77349	77373	77398	77422	77446	77470	77495	77519	77543	77567	77592	
25	77616	77640	77664	77688	77713	77737	77761	77785	77809	77833	77857	77882	
26	77906	77930	77954	77978	78002	78026	78050	78074	78098	78122	78146	78170	
27	78194	78218	78242	78266	78290	78314	78338	78361	78385	78409	78433	78457	
28	5.78481	78505	78529	78552	78576	78600	78624	78648	78671	78695	78719	78743	
29	78767	78790	78814	78838	78861	78885	78909	78933	78956	78980	79004	79027	
30	79051	79074	79098	79122	79145	79169	79192	79216	79240	79263	79287	79310	
31	79334	79357	79381	79404	79428	79451	79475	79498	79522	79545	79568	79592	
32	5.79615	79639	79662	79686	79709	79732	79756	79779	79802	79826	79849	79872	
33	79896	79919	79942	79965	79989	80012	80035	80059	80082	80105	80128	80151	
34	80175	80198	80221	80244	80267	80290	80314	80337	80360	80383	80406	80429	
35	80452	80475	80498	80521	80545	80568	80591	80614	80637	80660	80683	80706	
36	5.80729	80752	80775	80797	80820	80843	80866	80889	80912	80935	80958	80981	
37	81004	81027	81049	81072	81095	81118	81141	81163	81186	81209	81232	81255	
38	81277	81300	81323	81346	81368	81391	81414	81437	81459	81482	81505	81527	
39	81550	81573	81595	81618	81641	81663	81686	81708	81731	81754	81776	81799	
40	5.81821	81844	81866	81889	81911	81934	81956	81979	82001	82024	82046	82069	
41	82091	82114	82136	82159	82181	82203	82226	82248	82271	82293	82315	82338	
42	82360	82382	82405	82427	82449	82472	82494	82516	82538	82561	82583	82605	
43	82628	82650	82672	82694	82716	82739	82761	82783	82805	82827	82850	82872	
44	5.82894	82916	82938	82960	82982	83004	83026	83049	83071	83093	83115	83137	
45	83159	83181	83203	83225	83247	83269	83291	83313	83335	83357	83379	83401	
46	83423	83445	83467	83488	83510	83532	83554	83576	83598	83620	83642	83663	
47	83685	83707	83729	83751	83773	83794	83816	83838	83860	83881	83903	83925	
48	5.83947	83968	83990	84012	84034	84055	84077	84099	84120	84142	84164	84185	
49	84207	84229	84250	84272	84293	84315	84337	84358	84380	84401	84423	84444	
50	84466	84488	84509	84531	84552	84574	84595	84617	84638	84659	84681	84702	
51	84724	84745	84767	84788	84810	84831	84852	84874	84895	84916	84938	84959	
52	5.84981	85002	85023	85044	85066	85087	85108	85130	85151	85172	85194	85215	
53	85236	85257	85278	85300	85321	85342	85363	85385	85406	85427	85448	85469	
54	85490	85512	85533	85554	85575	85596	85617	85638	85659	85680	85701	85722	
55	85744	85765	85786	85807	85828	85849	85870	85891	85912	85933	85954	85975	
56	5.85996	86017	86038	86058	86079	86100	86121	86142	86163	86184	86205	86226	
57	86247	86267	86288	86309	86330	86351	86372	86392	86413	86434	86455	86475	
58	86496	86517	86538	86559	86579	86600	86621	86641	86662	86683	86704	86724	
59	86745	86766	86786	86807	86828	86848	86869	86889	86910	86931	86951	86972	
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
4 HOURS.													

LOGARITHMIC RISING.

5 HOURS.												Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
5.86992	87013	87034	87054	87075	87095	87116	87136	87157	87177	87198	87218	1" = 4
87239	87259	87280	87300	87321	87341	87362	87382	87402	87423	87443	87464	2. 8
87484	87505	87525	87545	87566	87586	87606	87627	87647	87667	87688	87708	3. 12
87728	87749	87769	87789	87809	87830	87850	87870	87890	87911	87931	87951	4. 16
5.87971	87992	88012	88032	88052	88072	88093	88113	88133	88153	88173	88193	1" = 4
88213	88234	88254	88274	88294	88314	88334	88354	88374	88394	88414	88434	2. 8
88454	88474	88494	88514	88534	88554	88574	88594	88614	88634	88654	88674	3. 12
88694	88714	88734	88754	88774	88794	88814	88834	88853	88873	88893	88913	4. 16
5.88933	88953	88973	88993	89012	89032	89052	89072	89091	89111	89131	89151	1" = 4
89171	89190	89210	89230	89250	89269	89289	89309	89328	89348	89368	89388	2. 8
89407	89427	89447	89466	89486	89506	89525	89545	89564	89584	89604	89623	3. 12
89643	89662	89682	89702	89721	89741	89760	89780	89799	89819	89838	89858	4. 16
5.89877	89897	89916	89936	89955	89975	89994	90014	90033	90053	90072	90091	1" = 4
90111	90130	90150	90169	90188	90208	90227	90247	90266	90285	90305	90324	2. 8
90343	90363	90382	90401	90421	90440	90459	90478	90498	90517	90536	90555	3. 11
90575	90594	90613	90632	90652	90671	90690	90709	90728	90748	90767	90786	4. 15
5.90805	90824	90843	90863	90882	90901	90920	90939	90958	90977	90996	91015	1" = 4
91034	91054	91073	91092	91111	91130	91149	91168	91187	91206	91225	91244	2. 8
91263	91282	91301	91320	91339	91358	91377	91396	91414	91433	91452	91471	3. 11
91490	91509	91528	91547	91566	91585	91603	91622	91641	91660	91679	91698	4. 15
5.91716	91735	91754	91773	91792	91811	91829	91848	91867	91886	91904	91923	1" = 4
91942	91961	91979	91998	92017	92035	92054	92073	92092	92110	92129	92148	2. 8
92166	92185	92203	92222	92241	92259	92278	92297	92315	92334	92352	92371	3. 11
92390	92408	92427	92445	92464	92483	92501	92519	92538	92556	92575	92593	4. 15
5.93612	93630	93649	93667	93686	93704	93723	93741	93760	93778	93796	93815	1" = 4
93833	93851	93870	93888	93907	93925	93944	93962	93980	93999	94017	94035	2. 7
94054	94072	94090	94109	94127	94145	94164	94182	94200	94218	94237	94255	3. 11
94273	94291	94309	94328	94346	94364	94382	94401	94419	94437	94455	94473	4. 14
5.93492	93510	93528	93546	93564	93582	93600	93619	93637	93655	93673	93691	1" = 4
93709	93727	93745	93763	93781	93800	93817	93836	93854	93872	93890	93908	2. 7
93926	93944	93962	93980	93998	94016	94034	94052	94069	94088	94105	94123	3. 11
94141	94159	94177	94195	94213	94231	94249	94267	94284	94302	94320	94338	4. 14
5.94356	94374	94392	94410	94427	94445	94463	94481	94498	94516	94534	94552	1" = 4
94570	94587	94605	94623	94641	94658	94676	94694	94711	94729	94747	94765	2. 7
94782	94800	94818	94835	94853	94871	94888	94906	94924	94941	94959	94976	3. 11
94994	95012	95029	95047	95065	95082	95100	95117	95135	95153	95170	95188	4. 14
5.95205	95223	95240	95258	95275	95293	95310	95328	95345	95363	95380	95398	1" = 4
95415	95433	95450	95468	95485	95502	95520	95537	95555	95572	95589	95607	2. 7
95624	95642	95659	95676	95694	95711	95728	95746	95763	95780	95798	95815	3. 11
95832	95850	95867	95884	95902	95919	95936	95953	95971	95988	96005	96022	4. 14
5.96040	96057	96074	96091	96109	96126	96143	96160	96177	96195	96212	96229	1" = 3
96246	96263	96280	96297	96315	96332	96349	96366	96383	96400	96417	96434	2. 7
96451	96469	96486	96503	96520	96537	96554	96571	96588	96605	96622	96639	3. 10
96656	96673	96690	96707	96724	96741	96758	96775	96792	96809	96826	96843	4. 14
5.96860	96877	96894	96910	96927	96944	96961	96978	96995	97012	97029	97046	1" = 3
97062	97079	97096	97113	97130	97147	97163	97180	97197	97214	97231	97247	2. 7
97264	97281	97298	97315	97331	97348	97365	97382	97398	97415	97432	97449	3. 10
97465	97482	97499	97515	97532	97549	97565	97582	97599	97615	97632	97649	4. 14
5.97665	97682	97699	97715	97732	97749	97765	97782	97798	97815	97832	97848	1" = 3
97865	97881	97898	97914	97931	97947	97964	97981	97997	98014	98030	98047	2. 7
98063	98080	98096	98113	98129	98145	98162	98178	98195	98211	98228	98244	3. 10
98261	98277	98293	98310	98326	98343	98359	98375	98392	98408	98425	98441	4. 14
5.98457	98474	98490	98506	98523	98539	98555	98572	98588	98604	98620	98637	1" = 3
98653	98669	98686	98702	98718	98734	98751	98767	98783	98799	98816	98832	2. 6
98848	98864	98880	98897	98913	98929	98945	98961	98977	98994	99010	99026	3. 10
99042	99058	99074	99090	99107	99123	99139	99155	99171	99187	99203	99219	4. 13
5.99235	99251	99267	99284	99300	99316	99332	99348	99364	99380	99396	99412	1" = 3
99428	99444	99460	99476	99492	99508	99524	99540	99556	99572	99587	99603	2. 6
99619	99635	99651	99667	99683	99699	99715	99731	99747	99763	99778	99794	3. 10
99810	99826	99842	99858	99873	99889	99905	99921	99937	99953	99968	99984	4. 13
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proport. parts.

5 HOURS.

LOGARITHMIC RISING.

Minutes	6 HOURS.											
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	6.00000	00016	00032	00047	00063	00079	00095	00110	00126	00142	00158	00173
1	00189	00205	00221	00236	00252	00268	00283	00299	00315	00330	00346	00362
2	00377	00393	00409	00424	00440	00456	00471	00487	00502	00518	00534	00549
3	00565	00580	00596	00612	00627	00643	00658	00674	00689	00705	00720	00736
4	6.00751	00767	00782	00798	00813	00829	00844	00860	00875	00891	00906	00922
5	00937	00953	00968	00984	00999	01014	01030	01045	01061	01076	01091	01107
6	01123	01138	01153	01168	01184	01199	01214	01230	01245	01260	01276	01291
7	01306	01322	01337	01352	01368	01383	01398	01413	01429	01444	01459	01474
8	6.01490	01505	01520	01536	01551	01566	01581	01596	01612	01627	01642	01657
9	01672	01688	01703	01718	01733	01748	01763	01779	01794	01809	01824	01839
10	01854	01869	01884	01900	01915	01930	01945	01960	01975	01990	02005	02020
11	02035	02050	02065	02080	02095	02110	02125	02140	02155	02170	02185	02200
12	6.02215	02230	02245	02260	02275	02290	02305	02320	02335	02350	02365	02380
13	02395	02410	02425	02440	02455	02469	02484	02499	02514	02529	02544	02559
14	02574	02588	02603	02618	02633	02648	02663	02677	02692	02707	02722	02737
15	02751	02766	02781	02796	02811	02825	02840	02855	02870	02884	02899	02914
16	6.02928	02943	02958	02973	02987	03002	03017	03031	03046	03061	03075	03090
17	03105	03119	03134	03149	03163	03178	03193	03207	03222	03237	03251	03266
18	03280	03295	03310	03324	03339	03353	03368	03382	03397	03412	03426	03441
19	03455	03470	03484	03499	03513	03528	03542	03557	03571	03586	03600	03615
20	6.03629	03644	03658	03672	03687	03701	03716	03730	03745	03759	03774	03788
21	03802	03817	03831	03846	03860	03874	03889	03903	03918	03932	03946	03961
22	03975	03989	04004	04018	04032	04047	04061	04075	04090	04104	04118	04132
23	04147	04161	04175	04190	04204	04218	04232	04247	04261	04275	04289	04303
24	6.04318	04332	04346	04360	04375	04389	04403	04417	04431	04445	04460	04474
25	04488	04502	04516	04530	04545	04559	04573	04587	04601	04615	04629	04643
26	04657	04672	04686	04700	04714	04728	04742	04756	04770	04784	04798	04812
27	04826	04840	04854	04868	04882	04896	04910	04924	04938	04952	04966	04980
28	6.04994	05008	05022	05036	05050	05064	05078	05092	05106	05120	05134	05148
29	05162	05175	05189	05203	05217	05231	05245	05259	05273	05286	05300	05314
30	05328	05342	05356	05370	05383	05397	05411	05425	05439	05452	05466	05480
31	05494	05508	05521	05535	05549	05563	05577	05590	05604	05618	05632	05645
32	6.05659	05673	05686	05700	05714	05728	05741	05755	05769	05782	05796	05810
33	05823	05837	05851	05864	05878	05892	05905	05919	05933	05946	05960	05973
34	05987	06001	06014	06028	06041	06055	06069	06082	06096	06109	06123	06136
35	06150	06163	06177	06191	06204	06218	06231	06245	06258	06272	06285	06299
36	6.06312	06326	06339	06353	06366	06379	06393	06406	06420	06433	06447	06460
37	06474	06487	06500	06514	06527	06541	06554	06567	06581	06594	06608	06621
38	06634	06648	06661	06674	06688	06701	06714	06728	06741	06754	06768	06781
39	06794	06808	06821	06834	06848	06861	06874	06887	06901	06914	06927	06941
40	6.06954	06967	06980	06994	07007	07020	07033	07046	07060	07073	07086	07099
41	07112	07126	07139	07152	07165	07178	07192	07205	07218	07231	07244	07257
42	07270	07284	07297	07310	07323	07336	07349	07362	07375	07388	07401	07415
43	07428	07441	07454	07467	07480	07493	07506	07519	07532	07545	07558	07571
44	6.07584	07597	07610	07623	07636	07649	07662	07675	07688	07701	07714	07727
45	07740	07753	07766	07779	07792	07805	07818	07831	07844	07857	07869	07882
46	07895	07908	07921	07934	07947	07960	07973	07985	07998	08011	08024	08037
47	08050	08063	08076	08088	08101	08114	08127	08140	08152	08165	08178	08191
48	6.08204	08216	08229	08242	08255	08267	08280	08293	08306	08318	08331	08344
49	08357	08369	08382	08395	08408	08420	08433	08446	08458	08471	08484	08496
50	08509	08522	08534	08547	08560	08572	08585	08598	08610	08623	08636	08648
51	08661	08673	08686	08699	08711	08724	08736	08749	08762	08774	08787	08799
52	6.08812	08824	08837	08850	08862	08875	08887	08900	08912	08925	08937	08950
53	08962	08975	08987	09000	09012	09025	09037	09050	09062	09075	09087	09100
54	09112	09124	09137	09149	09162	09174	09187	09199	09211	09224	09236	09249
55	09261	09273	09286	09298	09311	09323	09335	09348	09360	09372	09385	09397
56	6.09409	09422	09434	09446	09459	09471	09483	09496	09508	09520	09533	09545
57	09557	09569	09582	09594	09606	09618	09631	09643	09655	09667	09680	09692
58	09704	09716	09729	09741	09753	09765	09777	09790	09802	09814	09826	09838
59	09851	09863	09875	09887	09899	09911	09924	09936	09948	09960	09972	09984
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'

6 HOURS.

TABLE XXXII.
LOGARITHMIC RISING.

201

7 HOURS.												Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
6.09996	10008	10021	10033	10045	10057	10069	10081	10093	10105	10117	10129	1" = 2
10141	10153	10166	10178	10190	10202	10214	10226	10238	10250	10262	10274	2. 5
10286	10298	10310	10322	10334	10346	10358	10370	10382	10394	10406	10418	3. 7
10430	10441	10454	10465	10477	10489	10501	10513	10525	10537	10549	10561	4. 10
6.10573	10585	10597	10608	10620	10632	10644	10656	10668	10680	10691	10703	1" = 2
10715	10727	10739	10751	10763	10774	10786	10798	10810	10822	10833	10845	2. 5
10857	10869	10881	10893	10904	10916	10928	10940	10951	10963	10975	10986	3. 7
10998	11010	11022	11033	11045	11057	11069	11080	11092	11104	11115	11127	4. 10
6.11139	11150	11162	11174	11185	11197	11209	11220	11232	11244	11255	11267	1" = 2
11279	11290	11302	11314	11325	11337	11348	11360	11372	11383	11395	11406	2. 5
11418	11429	11441	11453	11464	11476	11487	11499	11510	11522	11533	11545	3. 7
11557	11568	11580	11591	11603	11614	11626	11637	11649	11660	11672	11683	4. 10
6.11695	11706	11717	11729	11740	11752	11763	11775	11786	11798	11809	11820	1" = 2
11832	11843	11855	11866	11878	11889	11900	11912	11923	11934	11946	11957	2. 5
11969	11980	11991	12003	12014	12025	12037	12048	12059	12071	12082	12093	3. 7
12105	12116	12127	12139	12150	12161	12173	12184	12195	12206	12218	12229	4. 10
6.12240	12251	12263	12274	12285	12296	12308	12319	12330	12341	12353	12364	1" = 2
12375	12386	12397	12409	12420	12431	12442	12453	12465	12476	12487	12498	2. 5
12509	12520	12532	12543	12554	12565	12576	12587	12598	12610	12621	12632	3. 7
12643	12654	12665	12676	12687	12698	12709	12721	12732	12743	12754	12765	4. 9
6.12776	12787	12798	12809	12820	12831	12842	12853	12864	12875	12886	12897	1" = 2
12908	12919	12930	12941	12952	12963	12974	12985	12996	13007	13018	13029	2. 4
13040	13051	13062	13073	13084	13095	13106	13117	13128	13139	13149	13160	3. 7
13171	13182	13193	13204	13215	13226	13237	13248	13258	13269	13280	13291	4. 9
6.13302	13313	13323	13334	13345	13356	13367	13378	13388	13399	13410	13421	1" = 2
13432	13442	13453	13464	13475	13486	13496	13507	13518	13529	13539	13550	2. 4
13561	13572	13582	13593	13604	13615	13625	13636	13647	13658	13668	13679	3. 7
13690	13700	13711	13722	13732	13743	13754	13765	13775	13786	13797	13807	4. 9
6.13818	13828	13839	13850	13860	13871	13882	13892	13903	13914	13924	13935	1" = 2
13945	13956	13967	13977	13988	13998	14009	14019	14030	14041	14051	14062	2. 4
14072	14083	14093	14104	14114	14125	14136	14146	14157	14167	14178	14188	3. 7
14199	14209	14220	14230	14241	14251	14262	14272	14282	14293	14303	14314	4. 9
6.14324	14335	14345	14356	14366	14377	14387	14397	14408	14418	14429	14439	1" = 2
14449	14460	14470	14481	14491	14501	14512	14522	14533	14543	14553	14564	2. 4
14574	14584	14595	14605	14615	14626	14636	14646	14657	14667	14677	14688	3. 7
14698	14708	14719	14729	14739	14750	14760	14770	14780	14790	14801	14811	4. 9
6.14821	14832	14842	14852	14862	14872	14883	14893	14903	14913	14924	14934	1" = 2
14944	14954	14964	14975	14985	14995	15005	15015	15026	15036	15046	15056	2. 4
15066	15076	15087	15097	15107	15117	15127	15137	15147	15157	15168	15178	3. 6
15188	15198	15208	15218	15228	15238	15248	15258	15269	15279	15289	15299	4. 8
6.15309	15319	15329	15339	15349	15359	15369	15379	15389	15399	15409	15419	1" = 2
15429	15439	15449	15459	15469	15479	15489	15499	15509	15519	15529	15539	2. 4
15549	15559	15569	15579	15589	15599	15609	15619	15629	15639	15649	15659	3. 6
15668	15678	15688	15698	15708	15718	15728	15738	15748	15758	15767	15777	4. 8
6.15787	15797	15807	15817	15827	15837	15846	15856	15866	15876	15886	15896	1" = 2
15905	15915	15925	15935	15944	15954	15964	15974	15984	15993	16003	16013	2. 4
16023	16033	16042	16052	16062	16072	16081	16091	16101	16111	16120	16130	3. 6
16140	16149	16159	16169	16179	16188	16198	16208	16217	16227	16237	16246	4. 8
6.16256	16266	16276	16285	16295	16304	16314	16324	16333	16343	16353	16362	1" = 2
16372	16382	16391	16401	16410	16420	16430	16439	16449	16459	16468	16478	2. 4
16487	16497	16506	16516	16526	16535	16545	16554	16564	16573	16583	16592	3. 6
16602	16612	16621	16631	16640	16650	16659	16669	16678	16688	16697	16707	4. 8
6.16716	16726	16735	16745	16754	16764	16773	16782	16792	16801	16811	16820	1" = 2
16830	16839	16849	16858	16867	16877	16886	16896	16905	16915	16924	16933	2. 4
16943	16952	16961	16971	16980	16990	16999	17008	17018	17027	17036	17046	3. 6
17055	17065	17074	17083	17093	17102	17111	17121	17130	17139	17148	17158	4. 7
6.17167	17176	17186	17195	17204	17214	17223	17232	17241	17251	17260	17269	1" = 2
17278	17288	17297	17306	17315	17325	17334	17343	17352	17362	17371	17380	2. 4
17389	17398	17408	17417	17426	17435	17444	17454	17463	17472	17481	17490	3. 5
17499	17509	17518	17527	17536	17545	17554	17563	17573	17582	17591	17600	4. 7
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Proport. parts.
7 HOURS.												

TABLE XXXII.

LOGARITHMIC RISING.

		8 HOURS.											
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
0	6. 17609	17618	17627	17637	17646	17655	17664	17673	17682	17691	17700	17709	
1	17718	17727	17736	17746	17755	17764	17773	17782	17791	17800	17809	17818	
2	17827	17836	17845	17854	17863	17872	17881	17890	17899	17908	17917	17926	
3	17935	17944	17953	17962	17971	17980	17989	17998	18007	18016	18024	18033	
4	6. 18042	18051	18060	18069	18078	18087	18096	18105	18114	18123	18132	18141	
5	18149	18158	18167	18176	18185	18194	18203	18212	18220	18229	18238	18247	
6	18256	18265	18273	18282	18291	18300	18309	18318	18326	18335	18344	18353	
7	18362	18371	18379	18388	18397	18406	18414	18423	18432	18441	18449	18458	
8	6. 18467	18476	18484	18493	18502	18511	18519	18528	18537	18546	18554	18563	
9	18573	18581	18589	18598	18606	18615	18624	18633	18641	18650	18659	18668	
10	18676	18685	18693	18702	18710	18719	18728	18737	18745	18754	18762	18771	
11	18780	18789	18797	18806	18814	18823	18831	18840	18848	18857	18866	18875	
12	6. 18883	18892	18900	18909	18917	18926	18934	18943	18951	18960	18968	18977	
13	18985	18994	19002	19011	19019	19028	19036	19045	19053	19062	19070	19079	
14	19087	19096	19104	19113	19121	19130	19138	19147	19155	19164	19172	19181	
15	19189	19198	19206	19215	19223	19232	19240	19248	19256	19265	19273	19281	
16	6. 19299	19309	19317	19326	19334	19343	19351	19359	19367	19376	19384	19392	
17	19399	19399	19407	19416	19424	19433	19441	19449	19457	19466	19474	19482	
18	19499	19499	19507	19516	19524	19532	19540	19549	19557	19565	19573	19581	
19	19599	19598	19606	19615	19623	19631	19639	19648	19656	19664	19672	19681	
20	6. 19689	19697	19705	19714	19722	19730	19738	19746	19754	19763	19771	19779	
21	19787	19796	19804	19812	19820	19828	19836	19844	19852	19861	19869	19877	
22	19885	19893	19901	19910	19918	19926	19934	19942	19950	19958	19966	19974	
23	19982	19991	19999	20007	20015	20023	20031	20039	20047	20055	20063	20071	
24	6. 20079	20087	20095	20103	20111	20119	20127	20135	20143	20151	20159	20167	
25	20175	20183	20191	20199	20207	20215	20223	20231	20239	20247	20255	20263	
26	20271	20279	20287	20295	20303	20311	20319	20327	20335	20343	20351	20359	
27	20366	20374	20382	20390	20398	20406	20414	20422	20430	20438	20446	20453	
28	6. 20461	20469	20477	20485	20493	20501	20508	20516	20524	20532	20540	20548	
29	20555	20563	20571	20579	20587	20595	20602	20610	20618	20626	20634	20642	
30	20649	20657	20665	20673	20680	20688	20696	20704	20711	20719	20727	20735	
31	20742	20750	20758	20766	20773	20781	20789	20797	20804	20812	20820	20828	
32	6. 20835	20843	20850	20858	20866	20874	20881	20889	20897	20905	20912	20920	
33	20927	20935	20943	20951	20958	20966	20973	20981	20988	20996	21004	21012	
34	21019	21027	21034	21042	21049	21057	21065	21073	21080	21088	21095	21103	
35	21110	21118	21125	21133	21140	21148	21155	21163	21170	21178	21186	21194	
36	6. 21201	21209	21216	21224	21231	21239	21246	21254	21261	21269	21276	21284	
37	21291	21299	21306	21314	21321	21329	21336	21344	21351	21358	21365	21373	
38	21380	21388	21395	21403	21410	21418	21425	21433	21440	21448	21455	21463	
39	21470	21477	21484	21492	21499	21507	21514	21522	21529	21536	21543	21551	
40	6. 21558	21566	21573	21581	21588	21595	21602	21610	21617	21625	21632	21639	
41	21646	21654	21661	21669	21676	21683	21690	21698	21705	21712	21719	21727	
42	21734	21741	21748	21756	21763	21770	21777	21785	21792	21799	21806	21814	
43	21821	21828	21835	21843	21850	21857	21864	21872	21879	21886	21893	21901	
44	6. 21908	21915	21922	21929	21936	21944	21951	21958	21965	21972	21979	21987	
45	21994	22001	22008	22015	22022	22030	22037	22044	22051	22058	22065	22072	
46	22079	22087	22094	22101	22108	22115	22122	22129	22136	22143	22150	22157	
47	22164	22172	22179	22186	22193	22200	22207	22214	22221	22228	22235	22242	
48	6. 22249	22256	22263	22270	22277	22284	22291	22298	22305	22312	22319	22326	
49	22333	22340	22347	22354	22361	22368	22375	22382	22389	22396	22403	22410	
50	22417	22424	22431	22438	22445	22452	22458	22465	22472	22479	22486	22493	
51	22500	22507	22514	22521	22528	22535	22541	22548	22555	22562	22569	22576	
52	6. 22583	22590	22596	22603	22610	22617	22624	22631	22637	22644	22651	22658	
53	22665	22672	22678	22685	22692	22699	22706	22713	22719	22726	22733	22740	
54	22746	22753	22760	22767	22773	22780	22787	22794	22801	22808	22814	22821	
55	22828	22835	22841	22848	22854	22861	22868	22875	22881	22888	22895	22902	
56	6. 22908	22915	22922	22929	22935	22942	22948	22955	22962	22969	22975	22982	
57	22988	22995	23002	23009	23015	23022	23028	23035	23042	23049	23055	23062	
58	23068	23075	23081	23088	23095	23102	23108	23115	23121	23128	23134	23141	
59	23147	23154	23160	23167	23174	23181	23187	23194	23200	23207	23213	23220	
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
8 HOURS.													

TO REDUCE POINTS OF THE COMPASS TO DEGREES, AND CONVERSELY.

North-East Quadrant.	South-East Quadrant.	Points.	Degrees, &c.	South-West Quadrant.	North-West Quadrant.
North.	South.	0.0	0. 0. 0	South.	North.
$\frac{1}{4}$ E.	S. $\frac{1}{4}$ E.	0. $\frac{1}{4}$	2. 48. 45	S. $\frac{1}{4}$ W.	N. $\frac{1}{4}$ W.
$\frac{1}{2}$ E.	S. $\frac{1}{2}$ E.	0. $\frac{1}{2}$	5. 37. 30	S. $\frac{1}{2}$ W.	N. $\frac{1}{2}$ W.
$\frac{3}{4}$ E.	S. $\frac{3}{4}$ E.	0. $\frac{3}{4}$	8. 26. 15	S. $\frac{3}{4}$ W.	N. $\frac{3}{4}$ W.
by E.	S. by E.	1.0	11. 15. 0	S. by W.	N. by W.
by E. $\frac{1}{4}$ E.	S. by E. $\frac{1}{4}$ E.	1. $\frac{1}{4}$	14. 3. 45	S. by W. $\frac{1}{4}$ W.	N. by W. $\frac{1}{4}$ W.
by E. $\frac{1}{2}$ E.	S. by E. $\frac{1}{2}$ E.	1. $\frac{1}{2}$	16. 52. 30	S. by W. $\frac{1}{2}$ W.	N. by W. $\frac{1}{2}$ W.
by E. $\frac{3}{4}$ E.	S. by E. $\frac{3}{4}$ E.	1. $\frac{3}{4}$	19. 41. 15	S. by W. $\frac{3}{4}$ W.	N. by W. $\frac{3}{4}$ W.
N. E.	S. S. E.	2.0	22. 30. 0	S. S. W.	N. N. W.
N. E. $\frac{1}{4}$ E.	S. S. E. $\frac{1}{4}$ E.	2. $\frac{1}{4}$	25. 18. 45	S. S. W. $\frac{1}{4}$ W.	N. N. W. $\frac{1}{4}$ W.
N. E. $\frac{1}{2}$ E.	S. S. E. $\frac{1}{2}$ E.	2. $\frac{1}{2}$	28. 7. 30	S. S. W. $\frac{1}{2}$ W.	N. N. W. $\frac{1}{2}$ W.
N. E. $\frac{3}{4}$ E.	S. S. E. $\frac{3}{4}$ E.	2. $\frac{3}{4}$	30. 56. 15	S. S. W. $\frac{3}{4}$ W.	N. N. W. $\frac{3}{4}$ W.
E. by N.	S. E. by S.	3.0	33. 45. 0	S. W. by S.	N. W. by N.
E. $\frac{1}{4}$ N.	S. E. $\frac{1}{4}$ S.	3. $\frac{1}{4}$	36. 33. 45	S. W. $\frac{1}{4}$ S.	N. W. $\frac{1}{4}$ N.
E. $\frac{1}{2}$ N.	S. E. $\frac{1}{2}$ S.	3. $\frac{1}{2}$	39. 22. 30	S. W. $\frac{1}{2}$ S.	N. W. $\frac{1}{2}$ N.
E. $\frac{3}{4}$ N.	S. E. $\frac{3}{4}$ S.	3. $\frac{3}{4}$	42. 11. 15	S. W. $\frac{3}{4}$ S.	N. W. $\frac{3}{4}$ N.
E.	S. E.	4.0	45. 0. 0	S. W.	N. W.
E. $\frac{1}{4}$ E.	S. E. $\frac{1}{4}$ E.	4. $\frac{1}{4}$	47. 48. 45	S. W. $\frac{1}{4}$ W.	N. W. $\frac{1}{4}$ W.
E. $\frac{1}{2}$ E.	S. E. $\frac{1}{2}$ E.	4. $\frac{1}{2}$	50. 37. 30	S. W. $\frac{1}{2}$ W.	N. W. $\frac{1}{2}$ W.
E. $\frac{3}{4}$ E.	S. E. $\frac{3}{4}$ E.	4. $\frac{3}{4}$	53. 26. 15	S. W. $\frac{3}{4}$ W.	N. W. $\frac{3}{4}$ W.
E. by E.	S. E. by E.	5.0	56. 15. 0	S. W. by W.	N. W. by W.
E. by E. $\frac{1}{4}$ E.	S. E. by E. $\frac{1}{4}$ E.	5. $\frac{1}{4}$	59. 3. 45	S. W. by W. $\frac{1}{4}$ W.	N. W. by W. $\frac{1}{4}$ W.
E. by E. $\frac{1}{2}$ E.	S. E. by E. $\frac{1}{2}$ E.	5. $\frac{1}{2}$	61. 52. 30	S. W. by W. $\frac{1}{2}$ W.	N. W. by W. $\frac{1}{2}$ W.
E. by E. $\frac{3}{4}$ E.	S. E. by E. $\frac{3}{4}$ E.	5. $\frac{3}{4}$	64. 41. 15	S. W. by W. $\frac{3}{4}$ W.	N. W. by W. $\frac{3}{4}$ W.
N. E.	E. S. E.	6.0	67. 30. 0	W. S. W.	N. N. W.
by N. $\frac{1}{4}$ N.	E. by S. $\frac{1}{4}$ S.	6. $\frac{1}{4}$	70. 18. 45	W. by S. $\frac{1}{4}$ S.	W. by N. $\frac{1}{4}$ N.
by N. $\frac{1}{2}$ N.	E. by S. $\frac{1}{2}$ S.	6. $\frac{1}{2}$	73. 7. 30	W. by S. $\frac{1}{2}$ S.	W. by N. $\frac{1}{2}$ N.
by N. $\frac{3}{4}$ N.	E. by S. $\frac{3}{4}$ S.	6. $\frac{3}{4}$	75. 56. 15	W. by S. $\frac{3}{4}$ S.	W. by N. $\frac{3}{4}$ N.
by N.	E. by S.	7.0	78. 45. 0	W. by S.	W. by N.
N.	E. $\frac{1}{4}$ S.	7. $\frac{1}{4}$	81. 33. 45	W. $\frac{1}{4}$ S.	W. $\frac{1}{4}$ N.
N.	E. $\frac{1}{2}$ S.	7. $\frac{1}{2}$	84. 22. 30	W. $\frac{1}{2}$ S.	W. $\frac{1}{2}$ N.
N.	E. $\frac{3}{4}$ S.	7. $\frac{3}{4}$	87. 11. 15	W. $\frac{3}{4}$ S.	W. $\frac{3}{4}$ N.
E.	East.	8.0	90. 0. 0	West.	West.

TABLE XXXIV.

ARITHMIC SINES, TANGENTS, AND SECANTS, TO EVERY POINT AND QUARTER-POINT OF THE COMPASS.

Sine.	Co-sine.	Tangent.	Co-tangent.	Secant.	Co-secant.	Points
0.000000	10.000000	0.000000	Infinite.	10.000000	Infinite.	8.0
8.690796	9.999477	8.691319	11.308681	10.000523	11.309204	7. $\frac{1}{4}$
8.991302	9.997904	8.993398	11.006602	10.002096	11.008698	7. $\frac{1}{2}$
9.166520	9.995274	9.171247	10.828753	10.004726	10.833480	7. $\frac{3}{4}$
9.290236	9.991574	9.298662	10.701338	10.008426	10.709764	7.0
9.385571	9.986786	9.398785	10.601215	10.013214	10.614429	6. $\frac{1}{4}$
9.462824	9.980885	9.481939	10.518061	10.019115	10.537176	6. $\frac{1}{2}$
9.527488	9.973841	9.553647	10.446553	10.026159	10.472512	6. $\frac{3}{4}$
9.582840	9.965615	9.617224	10.382776	10.034388	10.417160	6.0
9.630993	9.956163	9.674829	10.325171	10.043837	10.369008	5. $\frac{1}{4}$
9.673387	9.945430	9.727957	10.272043	10.054570	10.326613	5. $\frac{1}{2}$
9.711050	9.933350	9.777700	10.222300	10.066650	10.288950	5. $\frac{3}{4}$
9.744739	9.919846	9.824893	10.175107	10.080154	10.251261	5.0
9.775027	9.904828	9.870199	10.129801	10.095172	10.224973	4. $\frac{1}{4}$
9.802359	9.888185	9.914173	10.085827	10.111815	10.197641	4. $\frac{1}{2}$
9.827084	9.869790	9.957295	10.042705	10.130210	10.172916	4. $\frac{3}{4}$
9.849485	9.849485	10.000000	10.000000	10.150515	10.150515	4.0
Co-sine.	Sine.	Co-tangent.	Tangent.	Co-secant.	Secant.	Points

TABLE XXXV.

LOGARITHMIC SECANTS.

[illegible]

LOGARITHMIC SECANTS.

Secant of 1 degree, or Co-secant of 91 degrees.						Minutes	Proport. parts.
0'	10'	20'	30'	40'	50'		
00066	10.000067	10.000067	10.000067	10.000068	10.000068	59	
00068	10.000069	10.000069	10.000070	10.000070	10.000070	58	1" = 0
00071	10.000071	10.000071	10.000072	10.000072	10.000073	57	2. 0
00073	10.000073	10.000074	10.000074	10.000075	10.000075	56	3. 0
00075	10.000076	10.000076	10.000076	10.000077	10.000077	55	4. 0
00078	10.000078	10.000078	10.000079	10.000079	10.000080	54	5. 0
00080	10.000080	10.000081	10.000081	10.000082	10.000082	53	6. 0
00082	10.000083	10.000083	10.000084	10.000084	10.000085	52	7. 0
00085	10.000085	10.000086	10.000086	10.000087	10.000087	51	8. 0
00087	10.000088	10.000088	10.000089	10.000089	10.000090	50	9. 0
00090	10.000090	10.000091	10.000091	10.000092	10.000092	49	
00093	10.000093	10.000094	10.000094	10.000094	10.000095	48	1 = 0
00095	10.000096	10.000096	10.000097	10.000097	10.000097	47	2. 0
00098	10.000098	10.000099	10.000099	10.000100	10.000100	46	3. 0
00101	10.000101	10.000102	10.000102	10.000102	10.000103	45	4. 0
00103	10.000104	10.000104	10.000105	10.000105	10.000106	44	5. 0
00106	10.000107	10.000107	10.000108	10.000108	10.000108	43	6. 0
00109	10.000109	10.000110	10.000110	10.000111	10.000111	42	7. 0
00112	10.000112	10.000113	10.000113	10.000114	10.000114	41	8. 0
00115	10.000115	10.000116	10.000116	10.000117	10.000117	40	9. 0
00118	10.000118	10.000119	10.000119	10.000120	10.000120	39	
00121	10.000121	10.000122	10.000122	10.000123	10.000123	38	1 = 0
00124	10.000124	10.000125	10.000125	10.000126	10.000126	37	2. 0
00127	10.000127	10.000128	10.000128	10.000129	10.000129	36	3. 0
00130	10.000130	10.000131	10.000131	10.000132	10.000132	35	4. 0
00133	10.000133	10.000134	10.000134	10.000135	10.000135	34	5. 0
00136	10.000136	10.000137	10.000138	10.000138	10.000139	33	6. 0
00139	10.000140	10.000140	10.000141	10.000141	10.000142	32	7. 0
00142	10.000143	10.000143	10.000144	10.000144	10.000145	31	8. 0
00146	10.000146	10.000147	10.000147	10.000148	10.000148	30	9. 1
00149	10.000149	10.000150	10.000151	10.000151	10.000152	29	
00152	10.000153	10.000153	10.000154	10.000154	10.000155	28	1 = 0
00156	10.000156	10.000157	10.000157	10.000158	10.000158	27	2. c
00159	10.000160	10.000160	10.000161	10.000161	10.000162	26	3. c
00162	10.000163	10.000164	10.000164	10.000165	10.000165	25	4. c
00166	10.000166	10.000167	10.000168	10.000168	10.000169	24	5. c
00169	10.000170	10.000171	10.000171	10.000172	10.000172	23	6. c
00173	10.000174	10.000174	10.000175	10.000175	10.000176	22	7. c
00177	10.000177	10.000178	10.000178	10.000179	10.000180	21	8. c
00180	10.000181	10.000181	10.000182	10.000183	10.000183	20	9. 1
00184	10.000184	10.000185	10.000186	10.000186	10.000187	19	
00187	10.000188	10.000189	10.000189	10.000190	10.000191	18	1 = 0
00191	10.000192	10.000192	10.000193	10.000194	10.000194	17	2. 0
00195	10.000196	10.000196	10.000197	10.000198	10.000198	16	3. 0
00199	10.000199	10.000200	10.000201	10.000201	10.000202	15	4. 0
00203	10.000203	10.000204	10.000205	10.000205	10.000206	14	5. 0
00206	10.000207	10.000208	10.000208	10.000209	10.000210	13	6. 0
00210	10.000211	10.000212	10.000212	10.000213	10.000214	12	7. 0
00214	10.000215	10.000216	10.000216	10.000217	10.000218	11	8. 0
00218	10.000219	10.000220	10.000220	10.000221	10.000222	10	9. 1
00222	10.000223	10.000224	10.000224	10.000225	10.000226	9	
00226	10.000227	10.000228	10.000229	10.000229	10.000230	8	1 = 0
00231	10.000231	10.000232	10.000233	10.000233	10.000234	7	2. 0
00235	10.000235	10.000236	10.000237	10.000237	10.000238	6	3. 0
00239	10.000240	10.000240	10.000241	10.000242	10.000242	5	4. 0
00243	10.000244	10.000244	10.000245	10.000246	10.000247	4	5. 0
00247	10.000248	10.000249	10.000249	10.000250	10.000251	3	6. 0
00252	10.000252	10.000253	10.000254	10.000254	10.000255	2	7. 0
00256	10.000257	10.000257	10.000258	10.000259	10.000260	1	8. 0
00260	10.000261	10.000262	10.000262	10.000263	10.000264	0	9. 1
1'	50'	40'	30'	20'	10'	Minutes	Proport. parts.
Co-secant of 88 degrees, or Secant of 178 degrees.							

LOGARITHMIC SECANTS:

Secants, or Co-secant of 93 degrees.					Minutes	Proport. parts.
20'	30'	40'	50'			
10.000598	10.000599	10.000600	10.000601		59	
10.000604	10.000606	10.000607	10.000608		58	1" = 0
10.000611	10.000612	10.000613	10.000615		57	2. 0
10.000618	10.000619	10.000620	10.000621		56	3. 0
10.000625	10.000626	10.000627	10.000628		55	4. 0
10.000631	10.000633	10.000634	10.000635		54	5. 1
10.000638	10.000639	10.000641	10.000642		53	6. 1
10.000645	10.000646	10.000647	10.000649		52	7. 1
10.000652	10.000653	10.000654	10.000656		51	8. 1
10.000658	10.000659	10.000660	10.000661		50	9. 1
10.000665	10.000666	10.000667	10.000668	10.000670	49	
10.000672	10.000673	10.000674	10.000675	10.000677	48	1 = 0
10.000679	10.000680	10.000681	10.000682	10.000684	47	2. 0
10.000686	10.000687	10.000688	10.000690	10.000691	46	3. 0
10.000693	10.000694	10.000696	10.000697	10.000698	45	4. 0
10.000700	10.000701	10.000703	10.000704	10.000705	44	5. 1
10.000707	10.000709	10.000710	10.000711	10.000712	43	6. 1
10.000715	10.000716	10.000717	10.000718	10.000720	42	7. 1
10.000722	10.000723	10.000724	10.000726	10.000727	41	8. 1
10.000729	10.000731	10.000732	10.000733	10.000734	40	9. 1
10.000737	10.000738	10.000739	10.000740	10.000742	39	
10.000744	10.000745	10.000746	10.000748	10.000749	38	1 = 0
10.000751	10.000753	10.000754	10.000755	10.000756	37	2. 0
10.000759	10.000760	10.000761	10.000763	10.000764	36	3. 0
10.000766	10.000768	10.000769	10.000770	10.000771	35	4. 0
10.000774	10.000775	10.000776	10.000778	10.000779	34	5. 1
10.000781	10.000783	10.000784	10.000785	10.000787	33	6. 1
10.000789	10.000790	10.000792	10.000793	10.000794	32	7. 1
10.000797	10.000798	10.000799	10.000801	10.000802	31	8. 1
10.000804	10.000806	10.000807	10.000808	10.000810	30	9. 1
10.000812	10.000813	10.000815	10.000816	10.000817	29	
10.000820	10.000821	10.000822	10.000824	10.000825	28	1 = 0
10.000828	10.000829	10.000830	10.000832	10.000833	27	2. 0
10.000835	10.000837	10.000838	10.000839	10.000841	26	3. 0
10.000843	10.000845	10.000846	10.000847	10.000849	25	4. 1
10.000851	10.000853	10.000854	10.000855	10.000857	24	5. 1
10.000859	10.000861	10.000862	10.000863	10.000864	23	6. 1
10.000867	10.000868	10.000870	10.000871	10.000872	22	7. 1
10.000875	10.000876	10.000878	10.000879	10.000881	21	8. 1
10.000883	10.000885	10.000886	10.000887	10.000889	20	9. 1
10.000891	10.000893	10.000894	10.000895	10.000897	19	
10.000899	10.000901	10.000902	10.000904	10.000905	18	1 = 0
10.000908	10.000909	10.000910	10.000912	10.000913	17	2. 0
10.000916	10.000917	10.000918	10.000920	10.000921	16	3. 0
10.000924	10.000925	10.000927	10.000928	10.000930	15	4. 1
10.000932	10.000934	10.000935	10.000936	10.000938	14	5. 1
10.000941	10.000942	10.000943	10.000945	10.000946	13	6. 1
10.000949	10.000950	10.000952	10.000953	10.000955	12	7. 1
10.000957	10.000959	10.000960	10.000962	10.000963	11	8. 1
10.000966	10.000967	10.000969	10.000970	10.000971	10	9. 1
10.000974	10.000976	10.000977	10.000978	10.000980	9	
10.000983	10.000984	10.000985	10.000987	10.000988	8	1 = 0
10.000991	10.000993	10.000994	10.000995	10.000997	7	2. 0
10.001000	10.001001	10.001003	10.001004	10.001005	6	3. 0
10.001008	10.001010	10.001011	10.001013	10.001014	5	4. 1
10.001017	10.001018	10.001020	10.001021	10.001023	4	5. 1
10.001026	10.001027	10.001029	10.001030	10.001031	3	6. 1
10.001034	10.001036	10.001037	10.001039	10.001040	2	7. 1
10.001043	10.001045	10.001046	10.001047	10.001049	1	8. 1
10.001052	10.001053	10.001055	10.001056	10.001058	0	9. 1
50'	40'	30'	20'	10'	Minutes	Proport. parts.

Secant of 86 degrees, or Secant of 176 degrees.

TABLE XXXV.

LOGARITHMIC SECANTS. •

Secant of 4 degrees, or Co-secant of 94 degrees.						
Minutes	0'	10'	20'	30'	40'	50'
0	10.001059	10.001061	10.001062	10.001064	10.001065	10.001067
1	10.001068	10.001070	10.001071	10.001073	10.001074	10.001076
2	10.001077	10.001078	10.001080	10.001081	10.001083	10.001084
3	10.001086	10.001087	10.001089	10.001090	10.001092	10.001093
4	10.001095	10.001096	10.001098	10.001099	10.001101	10.001102
5	10.001104	10.001105	10.001107	10.001108	10.001110	10.001111
6	10.001113	10.001114	10.001116	10.001117	10.001119	10.001120
7	10.001122	10.001124	10.001125	10.001127	10.001128	10.001130
8	10.001131	10.001133	10.001134	10.001136	10.001137	10.001139
9	10.001140	10.001142	10.001143	10.001145	10.001146	10.001148
10	10.001149	10.001151	10.001153	10.001154	10.001156	10.001157
11	10.001159	10.001160	10.001162	10.001163	10.001165	10.001166
12	10.001168	10.001169	10.001171	10.001173	10.001174	10.001176
13	10.001177	10.001179	10.001180	10.001182	10.001183	10.001185
14	10.001187	10.001188	10.001190	10.001191	10.001193	10.001194
15	10.001196	10.001197	10.001199	10.001201	10.001202	10.001204
16	10.001205	10.001207	10.001208	10.001210	10.001212	10.001213
17	10.001215	10.001216	10.001218	10.001219	10.001221	10.001223
18	10.001224	10.001226	10.001227	10.001229	10.001231	10.001232
19	10.001234	10.001235	10.001237	10.001239	10.001240	10.001242
20	10.001243	10.001245	10.001247	10.001248	10.001250	10.001251
21	10.001253	10.001255	10.001256	10.001258	10.001259	10.001261
22	10.001262	10.001264	10.001266	10.001267	10.001269	10.001271
23	10.001272	10.001274	10.001275	10.001277	10.001279	10.001280
24	10.001283	10.001284	10.001285	10.001287	10.001288	10.001290
25	10.001293	10.001293	10.001295	10.001297	10.001298	10.001300
26	10.001301	10.001303	10.001305	10.001306	10.001308	10.001310
27	10.001311	10.001313	10.001314	10.001316	10.001318	10.001319
28	10.001321	10.001323	10.001324	10.001326	10.001328	10.001329
29	10.001331	10.001333	10.001334	10.001336	10.001338	10.001339
30	10.001341	10.001343	10.001344	10.001346	10.001348	10.001349
31	10.001351	10.001353	10.001354	10.001356	10.001358	10.001359
32	10.001361	10.001363	10.001364	10.001366	10.001368	10.001369
33	10.001371	10.001373	10.001374	10.001376	10.001378	10.001379
34	10.001381	10.001383	10.001384	10.001386	10.001388	10.001389
35	10.001391	10.001393	10.001394	10.001396	10.001398	10.001400
36	10.001401	10.001403	10.001405	10.001406	10.001408	10.001410
37	10.001411	10.001413	10.001415	10.001417	10.001418	10.001420
38	10.001422	10.001423	10.001425	10.001427	10.001428	10.001430
39	10.001432	10.001434	10.001435	10.001437	10.001439	10.001440
40	10.001442	10.001444	10.001446	10.001447	10.001449	10.001451
41	10.001452	10.001454	10.001456	10.001458	10.001459	10.001461
42	10.001463	10.001465	10.001466	10.001468	10.001470	10.001472
43	10.001473	10.001475	10.001477	10.001478	10.001480	10.001482
44	10.001484	10.001485	10.001487	10.001489	10.001491	10.001492
45	10.001494	10.001496	10.001498	10.001499	10.001501	10.001503
46	10.001505	10.001506	10.001508	10.001510	10.001512	10.001513
47	10.001515	10.001517	10.001519	10.001521	10.001522	10.001524
48	10.001526	10.001528	10.001529	10.001531	10.001533	10.001535
49	10.001536	10.001538	10.001540	10.001542	10.001544	10.001545
50	10.001547	10.001549	10.001551	10.001552	10.001554	10.001556
51	10.001558	10.001560	10.001561	10.001563	10.001565	10.001567
52	10.001569	10.001570	10.001572	10.001574	10.001576	10.001578
53	10.001579	10.001581	10.001583	10.001585	10.001587	10.001588
54	10.001590	10.001592	10.001594	10.001596	10.001597	10.001599
55	10.001601	10.001603	10.001605	10.001606	10.001608	10.001610
56	10.001612	10.001614	10.001616	10.001617	10.001619	10.001621
57	10.001623	10.001625	10.001626	10.001628	10.001630	10.001632
58	10.001634	10.001636	10.001637	10.001639	10.001641	10.001643
59	10.001645	10.001647	10.001648	10.001650	10.001652	10.001654
	60'	50'	40'	30'	20'	10'
Co-secant of 85 degrees, or Secant of 175 degrees.						

LOGARITHMIC SECANTS.

Secant of 5 degrees, or Co-secant of 95 degrees.							Minutes	Proport. parts.
0'	10'	20'	30'	40'	50'			
0	10.001656	10.001658	10.001659	10.001661	10.001663	10.001665	59	1" = 0
1	10.001667	10.001669	10.001671	10.001672	10.001674	10.001676	58	2. 0
2	10.001678	10.001680	10.001682	10.001684	10.001685	10.001687	57	3. 1
3	10.001689	10.001691	10.001693	10.001695	10.001697	10.001698	56	4. 1
4	10.001700	10.001702	10.001704	10.001706	10.001708	10.001710	55	5. 1
5	10.001711	10.001713	10.001715	10.001717	10.001719	10.001721	54	6. 1
6	10.001723	10.001725	10.001727	10.001728	10.001730	10.001732	53	7. 1
7	10.001734	10.001736	10.001738	10.001740	10.001742	10.001744	52	8. 2
8	10.001745	10.001747	10.001749	10.001751	10.001753	10.001755	51	9. 2
9	10.001757	10.001759	10.001761	10.001762	10.001764	10.001766	50	1" = 0
10	10.001768	10.001770	10.001772	10.001774	10.001776	10.001778	49	2. 0
11	10.001780	10.001782	10.001783	10.001785	10.001787	10.001789	48	3. 1
12	10.001791	10.001793	10.001795	10.001797	10.001799	10.001801	47	4. 1
13	10.001803	10.001805	10.001806	10.001808	10.001810	10.001812	46	5. 1
14	10.001814	10.001816	10.001818	10.001820	10.001822	10.001824	45	6. 1
15	10.001826	10.001828	10.001830	10.001832	10.001833	10.001835	44	7. 1
16	10.001837	10.001839	10.001841	10.001843	10.001845	10.001847	43	8. 2
17	10.001849	10.001851	10.001853	10.001855	10.001857	10.001859	42	9. 2
18	10.001861	10.001863	10.001865	10.001867	10.001869	10.001871	41	1" = 0
19	10.001872	10.001874	10.001876	10.001878	10.001880	10.001882	40	2. 0
20	10.001884	10.001886	10.001888	10.001890	10.001892	10.001894	39	3. 1
21	10.001896	10.001898	10.001900	10.001902	10.001904	10.001906	38	4. 1
22	10.001908	10.001910	10.001912	10.001914	10.001916	10.001918	37	5. 1
23	10.001920	10.001922	10.001924	10.001926	10.001928	10.001930	36	6. 1
24	10.001932	10.001934	10.001936	10.001938	10.001940	10.001942	35	7. 1
25	10.001944	10.001946	10.001948	10.001950	10.001952	10.001954	34	8. 2
26	10.001956	10.001958	10.001960	10.001962	10.001964	10.001966	33	9. 2
27	10.001968	10.001970	10.001972	10.001974	10.001976	10.001978	32	1" = 0
28	10.001980	10.001982	10.001984	10.001986	10.001988	10.001990	31	2. 0
29	10.001992	10.001994	10.001996	10.001998	10.002000	10.002002	30	3. 1
30	10.002004	10.002006	10.002008	10.002010	10.002012	10.002014	29	4. 1
31	10.002016	10.002018	10.002020	10.002022	10.002024	10.002026	28	5. 1
32	10.002028	10.002030	10.002032	10.002034	10.002036	10.002038	27	6. 1
33	10.002040	10.002042	10.002044	10.002046	10.002048	10.002050	26	7. 1
34	10.002052	10.002054	10.002056	10.002058	10.002060	10.002062	25	8. 2
35	10.002064	10.002066	10.002068	10.002070	10.002072	10.002074	24	9. 2
36	10.002076	10.002078	10.002080	10.002082	10.002084	10.002086	23	1" = 0
37	10.002090	10.002092	10.002094	10.002096	10.002098	10.002100	22	2. 0
38	10.002102	10.002104	10.002106	10.002108	10.002110	10.002112	21	3. 1
39	10.002114	10.002116	10.002118	10.002120	10.002122	10.002124	20	4. 1
40	10.002126	10.002128	10.002130	10.002132	10.002134	10.002136	19	5. 1
41	10.002138	10.002140	10.002142	10.002144	10.002146	10.002148	18	6. 1
42	10.002150	10.002152	10.002154	10.002156	10.002158	10.002160	17	7. 1
43	10.002162	10.002164	10.002166	10.002168	10.002170	10.002172	16	8. 2
44	10.002174	10.002176	10.002178	10.002180	10.002182	10.002184	15	9. 2
45	10.002186	10.002188	10.002190	10.002192	10.002194	10.002196	14	1" = 0
46	10.002198	10.002200	10.002202	10.002204	10.002206	10.002208	13	2. 0
47	10.002210	10.002212	10.002214	10.002216	10.002218	10.002220	12	3. 1
48	10.002222	10.002224	10.002226	10.002228	10.002230	10.002232	11	4. 1
49	10.002234	10.002236	10.002238	10.002240	10.002242	10.002244	10	5. 1
50	10.002246	10.002248	10.002250	10.002252	10.002254	10.002256	9	6. 1
51	10.002258	10.002260	10.002262	10.002264	10.002266	10.002268	8	7. 1
52	10.002270	10.002272	10.002274	10.002276	10.002278	10.002280	7	8. 2
53	10.002282	10.002284	10.002286	10.002288	10.002290	10.002292	6	9. 2
54	10.002294	10.002296	10.002298	10.002300	10.002302	10.002304	5	1" = 0
55	10.002306	10.002308	10.002310	10.002312	10.002314	10.002316	4	2. 0
56	10.002318	10.002320	10.002322	10.002324	10.002326	10.002328	3	3. 1
57	10.002330	10.002332	10.002334	10.002336	10.002338	10.002340	2	4. 1
58	10.002342	10.002344	10.002346	10.002348	10.002350	10.002352	1	5. 1
59	10.002354	10.002356	10.002358	10.002360	10.002362	10.002364	0	6. 1
60	10.002366	10.002368	10.002370	10.002372	10.002374	10.002376		7. 1
61	10.002378	10.002380	10.002382	10.002384	10.002386	10.002388		8. 2
62	10.002390	10.002392	10.002394	10.002396	10.002398	10.002400		9. 2
63	10.002402	10.002404	10.002406	10.002408	10.002410	10.002412		1" = 0
64	10.002414	10.002416	10.002418	10.002420	10.002422	10.002424		2. 0
65	10.002426	10.002428	10.002430	10.002432	10.002434	10.002436		3. 1
66	10.002438	10.002440	10.002442	10.002444	10.002446	10.002448		4. 1
67	10.002450	10.002452	10.002454	10.002456	10.002458	10.002460		5. 1
68	10.002462	10.002464	10.002466	10.002468	10.002470	10.002472		6. 1
69	10.002474	10.002476	10.002478	10.002480	10.002482	10.002484		7. 1
70	10.002486	10.002488	10.002490	10.002492	10.002494	10.002496		8. 2
71	10.002498	10.002500	10.002502	10.002504	10.002506	10.002508		9. 2
72	10.002510	10.002512	10.002514	10.002516	10.002518	10.002520		1" = 0
73	10.002522	10.002524	10.002526	10.002528	10.002530	10.002532		2. 0
74	10.002534	10.002536	10.002538	10.002540	10.002542	10.002544		3. 1
75	10.002546	10.002548	10.002550	10.002552	10.002554	10.002556		4. 1
76	10.002558	10.002560	10.002562	10.002564	10.002566	10.002568		5. 1
77	10.002570	10.002572	10.002574	10.002576	10.002578	10.002580		6. 1
78	10.002582	10.002584	10.002586	10.002588	10.002590	10.002592		7. 1
79	10.002594	10.002596	10.002598	10.002600	10.002602	10.002604		8. 2
80	10.002606	10.002608	10.002610	10.002612	10.002614	10.002616		9. 2
81	10.002618	10.002620	10.002622	10.002624	10.002626	10.002628		1" = 0
82	10.002630	10.002632	10.002634	10.002636	10.002638	10.002640		2. 0
83	10.002642	10.002644	10.002646	10.002648	10.002650	10.002652		3. 1
84	10.002654	10.002656	10.002658	10.002660	10.002662	10.002664		4. 1
85	10.002666	10.002668	10.002670	10.002672	10.002674	10.002676		5. 1
86	10.002678	10.002680	10.002682	10.002684	10.002686	10.002688		6. 1
87	10.002690	10.002692	10.002694	10.002696	10.002698	10.002700		7. 1
88	10.002702	10.002704	10.002706	10.002708	10.002710	10.002712		8. 2
89	10.002714	10.002716	10.002718	10.002720	10.002722	10.002724		9. 2
90	10.002726	10.002728	10.002730	10.002732	10.002734	10.002736		1" = 0
91	10.002738	10.002740	10.002742	10.002744	10.002746	10.002748		2. 0
92	10.002750	10.002752	10.002754	10.002756	10.002758	10.002760		3. 1
93	10.002762	10.002764	10.002766	10.002768	10.002770	10.002772		4. 1
94	10.002774	10.002776	10.002778	10.002780	10.002782	10.002784		5. 1
95	10.002786	10.002788	10.002790	10.002792	10.002794	10.002796		6. 1
96	10.002798	10.002800	10.002802	10.002804	10.002806	10.002808		7. 1
97	10.002810	10.002812	10.002814	10.002816	10.002818	10.002820		8. 2
98	10.002822	10.002824	10.002826	10.002828	10.002830	10.002832		9. 2
99	10.002834	10.002836	10.002838	10.002840	10.002842	10.002844		1" = 0
100	10.002846	10.002848	10.002850	10.002852	10.002854	10.002856		2. 0
101	10.002858	10.002860	10.002862	10.002864	10.002866	10.002868		3. 1
102	10.002870	10.002872	10.002874	10.002876	10.002878	10.002880		4. 1
103	10.002882	10.002884	10.002886	10.002888	10.002890	10.002892		5. 1
104	10.002894	10.002896	10.002898	10.002900	10.002902	10.002904		6. 1
105	10.002906	10.002908	10.002910	10.002912	10.002914	10.002916		7. 1
106	10.002918	10.002920	10.002922	10.002924	10.002926	10.002928		8. 2
107	10.002930	10.002932	10.002934	10.002936	10.002938	10.002940		9. 2
108	10.002942	10.002944	10.002946	10.002948	10.002950	10.002952		1" = 0

LOGARITHMIC SECANTS.

Minutes	Secant of 6 degrees, or Co-secant of 96 degrees.						Minutes	Proport. parts.
	0'	10'	20'	30'	40'	50'		
0	10.002386	10.002388	10.002390	10.002392	10.002395	10.002397	59	
1	10.002399	10.002401	10.002403	10.002406	10.002408	10.002410	58	1" =
2	10.002412	10.002415	10.002417	10.002419	10.002421	10.002423	57	2.
3	10.002426	10.002428	10.002430	10.002432	10.002435	10.002437	56	3.
4	10.002439	10.002441	10.002444	10.002446	10.002448	10.002450	55	4.
5	10.002453	10.002455	10.002457	10.002459	10.002461	10.002464	54	5.
6	10.002466	10.002468	10.002471	10.002473	10.002475	10.002477	53	6.
7	10.002480	10.002482	10.002484	10.002486	10.002489	10.002491	52	7.
8	10.002493	10.002495	10.002498	10.002500	10.002502	10.002504	51	8.
9	10.002507	10.002509	10.002511	10.002513	10.002516	10.002518	50	9.
10	10.002520	10.002523	10.002525	10.002527	10.002529	10.002532	49	
11	10.002534	10.002536	10.002539	10.002541	10.002543	10.002545	48	1 =
12	10.002548	10.002550	10.002552	10.002555	10.002557	10.002559	47	2.
13	10.002561	10.002564	10.002566	10.002568	10.002571	10.002573	46	3.
14	10.002575	10.002578	10.002580	10.002582	10.002584	10.002587	45	4.
15	10.002589	10.002591	10.002594	10.002596	10.002598	10.002601	44	5.
16	10.002603	10.002605	10.002608	10.002610	10.002612	10.002614	43	6.
17	10.002617	10.002619	10.002621	10.002624	10.002626	10.002628	42	7.
18	10.002631	10.002633	10.002635	10.002638	10.002640	10.002642	41	8.
19	10.002645	10.002647	10.002649	10.002652	10.002654	10.002656	40	9.
20	10.002659	10.002661	10.002663	10.002666	10.002668	10.002670	39	
21	10.002673	10.002675	10.002677	10.002680	10.002682	10.002684	38	1 =
22	10.002687	10.002689	10.002691	10.002694	10.002696	10.002699	37	2.
23	10.002701	10.002703	10.002706	10.002708	10.002710	10.002713	36	3.
24	10.002715	10.002717	10.002720	10.002722	10.002724	10.002727	35	4.
25	10.002729	10.002732	10.002734	10.002736	10.002739	10.002741	34	5.
26	10.002743	10.002746	10.002748	10.002751	10.002753	10.002755	33	6.
27	10.002758	10.002760	10.002763	10.002765	10.002767	10.002770	32	7.
28	10.002772	10.002774	10.002777	10.002779	10.002782	10.002784	31	8.
29	10.002786	10.002789	10.002791	10.002794	10.002796	10.002798	30	9.
30	10.002801	10.002803	10.002806	10.002808	10.002810	10.002813	29	
31	10.002815	10.002818	10.002820	10.002822	10.002825	10.002827	28	1 =
32	10.002830	10.002832	10.002834	10.002837	10.002839	10.002842	27	2.
33	10.002844	10.002847	10.002849	10.002851	10.002854	10.002856	26	3.
34	10.002859	10.002861	10.002863	10.002866	10.002868	10.002871	25	4.
35	10.002873	10.002876	10.002878	10.002880	10.002883	10.002885	24	5.
36	10.002888	10.002890	10.002893	10.002895	10.002898	10.002900	23	6.
37	10.002902	10.002905	10.002907	10.002910	10.002912	10.002915	22	7.
38	10.002917	10.002920	10.002922	10.002924	10.002927	10.002929	21	8.
39	10.002932	10.002934	10.002937	10.002939	10.002942	10.002944	20	9.
40	10.002947	10.002949	10.002951	10.002954	10.002956	10.002959	19	
41	10.002961	10.002964	10.002966	10.002969	10.002971	10.002974	18	1' =
42	10.002976	10.002979	10.002981	10.002984	10.002986	10.002989	17	2.
43	10.002991	10.002993	10.002996	10.002998	10.003001	10.003003	16	3.
44	10.003006	10.003008	10.003011	10.003013	10.003016	10.003018	15	4.
45	10.003021	10.003023	10.003026	10.003028	10.003031	10.003033	14	5.
46	10.003036	10.003038	10.003041	10.003043	10.003046	10.003048	13	6.
47	10.003051	10.003053	10.003056	10.003058	10.003061	10.003063	12	7.
48	10.003066	10.003068	10.003071	10.003073	10.003076	10.003078	11	8.
49	10.003081	10.003083	10.003086	10.003089	10.003091	10.003094	10	9.
50	10.003096	10.003099	10.003101	10.003104	10.003106	10.003109	9	
51	10.003111	10.003114	10.003116	10.003119	10.003121	10.003124	8	1 =
52	10.003126	10.003129	10.003132	10.003134	10.003137	10.003139	7	2.
53	10.003142	10.003144	10.003147	10.003149	10.003152	10.003154	6	3.
54	10.003157	10.003159	10.003162	10.003165	10.003167	10.003170	5	4.
55	10.003173	10.003175	10.003177	10.003180	10.003182	10.003185	4	5.
56	10.003188	10.003190	10.003193	10.003195	10.003198	10.003200	3	6.
57	10.003203	10.003206	10.003208	10.003211	10.003213	10.003216	2	7.
58	10.003218	10.003221	10.003224	10.003226	10.003229	10.003231	1	8.
59	10.003234	10.003236	10.003239	10.003241	10.003244	10.003247	0	9.
Minutes	60'	50'	40'	30'	20'	10'	Minutes	Proport. parts.
Co-secant of 83 degrees, or Secant of 173 degrees.								

LOGARITHMIC SECANTS.

Secant of 7 degrees, or Co-secant of 97 degrees.						Minutes	Proport. parts.
0°	10°	20°	30°	40°	50°		
10.003249	10.003252	10.003255	10.003257	10.003260	10.003262	59	
10.003265	10.003267	10.003270	10.003273	10.003275	10.003278	58	1" = 0
10.003280	10.003283	10.003286	10.003288	10.003291	10.003293	57	2. 1
10.003296	10.003299	10.003301	10.003304	10.003306	10.003309	56	3. 1
10.003312	10.003314	10.003317	10.003320	10.003322	10.003325	55	4. 1
10.003327	10.003330	10.003333	10.003335	10.003338	10.003340	54	5. 1
10.003343	10.003346	10.003348	10.003351	10.003353	10.003356	53	6. 2
10.003359	10.003361	10.003364	10.003367	10.003369	10.003372	52	7. 2
10.003375	10.003377	10.003380	10.003382	10.003385	10.003388	51	8. 2
10.003390	10.003393	10.003396	10.003398	10.003401	10.003404	50	9. 2
10.003406	10.003409	10.003412	10.003414	10.003417	10.003419	49	
10.003422	10.003425	10.003427	10.003430	10.003433	10.003435	48	1 = 0
10.003438	10.003441	10.003443	10.003446	10.003449	10.003451	47	2. 1
10.003454	10.003457	10.003459	10.003462	10.003465	10.003467	46	3. 1
10.003470	10.003473	10.003475	10.003478	10.003481	10.003484	45	4. 1
10.003486	10.003489	10.003492	10.003494	10.003497	10.003500	44	5. 1
10.003502	10.003505	10.003508	10.003510	10.003513	10.003516	43	6. 2
10.003518	10.003521	10.003524	10.003527	10.003529	10.003532	42	7. 2
10.003535	10.003537	10.003540	10.003543	10.003545	10.003548	41	8. 2
10.003551	10.003553	10.003556	10.003559	10.003562	10.003564	40	9. 2
10.003567	10.003570	10.003572	10.003575	10.003578	10.003581	39	
10.003583	10.003586	10.003589	10.003591	10.003594	10.003597	38	1 = 0
10.003600	10.003602	10.003605	10.003608	10.003610	10.003613	37	2. 1
10.003616	10.003619	10.003621	10.003624	10.003627	10.003630	36	3. 1
10.003632	10.003635	10.003638	10.003640	10.003643	10.003646	35	4. 1
10.003649	10.003651	10.003654	10.003657	10.003660	10.003662	34	5. 1
10.003665	10.003668	10.003671	10.003673	10.003676	10.003679	33	6. 2
10.003682	10.003684	10.003687	10.003690	10.003693	10.003695	32	7. 2
10.003698	10.003701	10.003704	10.003707	10.003709	10.003712	31	8. 2
10.003715	10.003718	10.003720	10.003723	10.003726	10.003729	30	9. 3
10.003731	10.003734	10.003737	10.003740	10.003743	10.003745	29	
10.003748	10.003751	10.003754	10.003756	10.003759	10.003762	28	1 = 0
10.003765	10.003768	10.003770	10.003773	10.003776	10.003779	27	2. 1
10.003781	10.003784	10.003787	10.003790	10.003793	10.003796	26	3. 1
10.003798	10.003801	10.003804	10.003807	10.003810	10.003812	25	4. 1
10.003815	10.003818	10.003821	10.003823	10.003826	10.003829	24	5. 1
10.003832	10.003835	10.003837	10.003840	10.003843	10.003846	23	6. 2
10.003849	10.003852	10.003854	10.003857	10.003860	10.003863	22	7. 2
10.003866	10.003869	10.003871	10.003874	10.003877	10.003880	21	8. 2
10.003883	10.003885	10.003888	10.003891	10.003894	10.003897	20	9. 3
10.003900	10.003902	10.003905	10.003908	10.003911	10.003914	19	
10.003917	10.003919	10.003922	10.003925	10.003928	10.003931	18	1 = 0
10.003934	10.003937	10.003939	10.003942	10.003945	10.003948	17	2. 1
10.003951	10.003954	10.003956	10.003959	10.003962	10.003965	16	3. 1
10.003968	10.003971	10.003974	10.003976	10.003979	10.003982	15	4. 1
10.003985	10.003988	10.003991	10.003994	10.003997	10.003999	14	5. 1
10.004002	10.004005	10.004008	10.004011	10.004014	10.004017	13	6. 2
10.004020	10.004022	10.004025	10.004028	10.004031	10.004034	12	7. 2
10.004037	10.004040	10.004043	10.004046	10.004048	10.004051	11	8. 2
10.004054	10.004057	10.004060	10.004063	10.004066	10.004069	10	9. 3
10.004072	10.004074	10.004077	10.004080	10.004083	10.004086	9	
10.004089	10.004092	10.004095	10.004098	10.004101	10.004103	8	1 = 0
10.004106	10.004109	10.004112	10.004115	10.004118	10.004121	7	2. 1
10.004124	10.004127	10.004130	10.004133	10.004136	10.004138	6	3. 1
10.004141	10.004144	10.004147	10.004150	10.004153	10.004156	5	4. 1
10.004159	10.004162	10.004165	10.004168	10.004171	10.004174	4	5. 2
10.004177	10.004179	10.004182	10.004185	10.004188	10.004191	3	6. 2
10.004194	10.004197	10.004200	10.004203	10.004206	10.004209	2	7. 2
10.004212	10.004215	10.004218	10.004221	10.004224	10.004227	1	8. 2
10.004229	10.004232	10.004235	10.004238	10.004241	10.004244	0	9. 3
60°	50°	40°	30°	20°	10°	Minutes	Proport. parts.
Co-secant of 82 degrees, or Secant of 172 degrees.							

LOGARITHM

Minutes	Secant of 6 degrees			Secant of 8 degrees.			Minutes	Proportional parts.
	0'	10'		40'	50'			
0	10.002386	10.002388		10.004259	10.004262		59	
1	10.002399	10.002401		10.004277	10.004280		58	1" =
2	10.002412	10.002415		10.004295	10.004298		57	2.
3	10.002426	10.002428		10.004313	10.004316		56	3.
4	10.002439	10.002441		10.004330	10.004333		55	4.
5	10.002453	10.002455		10.004348	10.004351		54	5.
6	10.002466	10.002468		10.004366	10.004369		53	6.
7	10.002480	10.002482		10.004384	10.004387		52	7.
8	10.002493	10.002495		10.004400	10.004403		51	8.
9	10.002507	10.002509		10.004418	10.004421		50	9.
10	10.002520	10.002522		10.004436	10.004439		49	
11	10.002534	10.002536		10.004454	10.004457		48	1" =
12	10.002548	10.002550		10.004472	10.004475		47	2.
13	10.002561	10.002563		10.004490	10.004493		46	3.
14	10.002575	10.002577		10.004509	10.004512		45	4.
15	10.002589	10.002591		10.004527	10.004530		44	5.
16	10.002603	10.002605		10.004545	10.004548		43	6.
17	10.002617	10.002619		10.004564	10.004567		42	7.
18	10.002631	10.002633		10.004582	10.004585		41	8.
19	10.002645	10.002647		10.004601	10.004604		40	9.
20	10.002659	10.002661		10.004619	10.004622		39	
21	10.002673	10.002675		10.004638	10.004641		38	1" =
22	10.002687	10.002689		10.004656	10.004659		37	2.
23	10.002701	10.002703		10.004675	10.004678		36	3.
24	10.002715	10.002717		10.004693	10.004696		35	4.
25	10.002729	10.002731		10.004712	10.004715		34	5.
26	10.002743	10.002745		10.004731	10.004734		33	6.
27	10.002757	10.002759		10.004750	10.004753		32	7.
28	10.002771	10.002773		10.004768	10.004772		31	8.
29	10.002785	10.002787		10.004787	10.004790		30	9.
30	10.002799	10.002801		10.004806	10.004809		29	
31	10.002813	10.002815		10.004825	10.004828		28	1" =
32	10.002827	10.002829		10.004844	10.004847		27	2.
33	10.002841	10.002843		10.004863	10.004866		26	3.
34	10.002855	10.002857		10.004882	10.004885		25	4.
35	10.002869	10.002871		10.004901	10.004904		24	5.
36	10.002883	10.002885		10.004920	10.004923		23	6.
37	10.002897	10.002899		10.004939	10.004942		22	7.
38	10.002911	10.002913		10.004958	10.004961		21	8.
39	10.002925	10.002927		10.004978	10.004981		20	9.
40	10.002939	10.002941		10.004997	10.005000		19	
41	10.002953	10.002955		10.005016	10.005019		18	1" =
42	10.002967	10.002969		10.005036	10.005039		17	2.
43	10.002981	10.002983		10.005055	10.005058		16	3.
44	10.002995	10.002997		10.005074	10.005077		15	4.
45	10.003009	10.003011		10.005094	10.005097		14	5.
46	10.003023	10.003025		10.005113	10.005116		13	6.
47	10.003037	10.003039		10.005133	10.005136		12	7.
48	10.003051	10.003053		10.005152	10.005155		11	8.
49	10.003065	10.003067		10.005172	10.005175		10	9.
50	10.003079	10.003081		10.005192	10.005195		9	
51	10.003093	10.003095		10.005211	10.005214		8	1" =
52	10.003107	10.003109		10.005231	10.005234		7	2.
53	10.003121	10.003123		10.005251	10.005254		6	3.
54	10.003135	10.003137		10.005271	10.005274		5	4.
55	10.003149	10.003151		10.005290	10.005293		4	5.
56	10.003163	10.003165		10.005310	10.005313		3	6.
57	10.003177	10.003179		10.005330	10.005333		2	7.
58	10.003191	10.003193		10.005350	10.005353		1	8.
59	10.003205	10.003207		10.005370	10.005373		0	9.
60	10.003219	10.003221						
61	10.003233	10.003235						
62	10.003247	10.003249						
63	10.003261	10.003263						
64	10.003275	10.003277						
65	10.003289	10.003291						
66	10.003303	10.003305						
67	10.003317	10.003319						
68	10.003331	10.003333						
69	10.003345	10.003347						
70	10.003359	10.003361						
71	10.003373	10.003375						
72	10.003387	10.003389						
73	10.003401	10.003403						
74	10.003415	10.003417						
75	10.003429	10.003431						
76	10.003443	10.003445						
77	10.003457	10.003459						
78	10.003471	10.003473						
79	10.003485	10.003487						
80	10.003499	10.003501						
81	10.003513	10.003515						
82	10.003527	10.003529						
83	10.003541	10.003543						
84	10.003555	10.003557						
85	10.003569	10.003571						
86	10.003583	10.003585						
87	10.003597	10.003599						
88	10.003611	10.003613						
89	10.003625	10.003627						
90	10.003639	10.003641						
91	10.003653	10.003655						
92	10.003667	10.003669						
93	10.003681	10.003683						
94	10.003695	10.003697						
95	10.003709	10.003711						
96	10.003723	10.003725						
97	10.003737	10.003739						
98	10.003751	10.003753						
99	10.003765	10.003767						
100	10.003779	10.003781						

Co-secant of 81 degrees, or Secant of 171 degrees.

LOGARITHMIC SECANTS.

Tangent of 9 degrees, or Co-secant of 99 degrees.						Minutes	Proport. parts.
	10'	20'	30'	40'	50'		
180	10.005383	10.005387	10.005390	10.005393	10.005397	59	1" = 0
	10.005403	10.005407	10.005410	10.005414	10.005417	58	2. 1
440	10.005423	10.005427	10.005430	10.005434	10.005437	57	3. 1
460	10.005444	10.005447	10.005450	10.005454	10.005457	56	4. 1
481	10.005464	10.005467	10.005470	10.005474	10.005477	55	5. 2
501	10.005484	10.005487	10.005491	10.005494	10.005497	54	6. 2
521	10.005504	10.005508	10.005511	10.005514	10.005518	53	7. 2
541	10.005524	10.005528	10.005531	10.005535	10.005538	52	8. 3
562	10.005545	10.005548	10.005551	10.005555	10.005558	51	9. 3
582	10.005565	10.005568	10.005572	10.005575	10.005579	50	1" = 0
602	10.005585	10.005589	10.005593	10.005596	10.005599	49	2. 1
623	10.005606	10.005609	10.005613	10.005616	10.005619	48	3. 1
643	10.005626	10.005630	10.005633	10.005636	10.005640	47	4. 1
664	10.005647	10.005650	10.005654	10.005657	10.005660	46	5. 2
684	10.005667	10.005671	10.005674	10.005678	10.005681	45	6. 2
705	10.005688	10.005691	10.005695	10.005698	10.005702	44	7. 2
726	10.005708	10.005712	10.005715	10.005719	10.005723	43	8. 3
746	10.005729	10.005733	10.005736	10.005739	10.005743	42	9. 3
767	10.005750	10.005753	10.005757	10.005760	10.005764	41	1" = 0
788	10.005770	10.005774	10.005777	10.005781	10.005784	40	2. 1
809	10.005791	10.005795	10.005798	10.005802	10.005805	39	3. 1
829	10.005812	10.005815	10.005819	10.005822	10.005826	38	4. 1
850	10.005833	10.005836	10.005840	10.005843	10.005847	37	5. 2
871	10.005854	10.005857	10.005861	10.005864	10.005868	36	6. 2
892	10.005875	10.005878	10.005882	10.005885	10.005889	35	7. 2
913	10.005896	10.005899	10.005903	10.005906	10.005910	34	8. 3
934	10.005917	10.005920	10.005924	10.005927	10.005931	33	9. 3
955	10.005938	10.005941	10.005945	10.005948	10.005952	32	1" = 0
976	10.005959	10.005962	10.005966	10.005969	10.005973	31	2. 1
997	10.005980	10.005983	10.005987	10.005990	10.005994	30	3. 1
1018	10.006001	10.006004	10.006008	10.006011	10.006015	29	4. 1
1040	10.006022	10.006025	10.006029	10.006033	10.006036	28	5. 2
1061	10.006043	10.006047	10.006050	10.006054	10.006057	27	6. 2
1082	10.006064	10.006068	10.006071	10.006075	10.006079	26	7. 2
1103	10.006086	10.006089	10.006093	10.006096	10.006100	25	8. 3
1124	10.006107	10.006111	10.006114	10.006118	10.006121	24	9. 3
1145	10.006128	10.006132	10.006135	10.006139	10.006143	23	1" = 0
1166	10.006150	10.006153	10.006157	10.006160	10.006164	22	2. 1
1187	10.006171	10.006175	10.006178	10.006182	10.006185	21	3. 1
1208	10.006193	10.006196	10.006200	10.006203	10.006207	20	4. 1
1229	10.006214	10.006218	10.006221	10.006225	10.006228	19	5. 2
1250	10.006236	10.006239	10.006243	10.006246	10.006250	18	6. 2
1271	10.006257	10.006261	10.006264	10.006268	10.006272	17	7. 2
1292	10.006279	10.006282	10.006286	10.006290	10.006293	16	8. 3
1313	10.006301	10.006304	10.006308	10.006311	10.006315	15	9. 3
1334	10.006322	10.006326	10.006330	10.006333	10.006337	14	1" = 0
1355	10.006344	10.006348	10.006351	10.006355	10.006359	13	2. 1
1376	10.006366	10.006369	10.006373	10.006377	10.006380	12	3. 1
1397	10.006388	10.006391	10.006395	10.006398	10.006402	11	4. 1
1418	10.006409	10.006413	10.006417	10.006420	10.006424	10	5. 2
1439	10.006431	10.006435	10.006439	10.006442	10.006446	9	6. 2
1460	10.006453	10.006457	10.006461	10.006464	10.006468	8	7. 2
1481	10.006475	10.006479	10.006482	10.006486	10.006490	7	8. 3
1502	10.006497	10.006501	10.006504	10.006508	10.006512	6	9. 3
1523	10.006519	10.006523	10.006527	10.006530	10.006534	5	1" = 0
1544	10.006541	10.006545	10.006549	10.006552	10.006556	4	2. 1
1565	10.006563	10.006567	10.006571	10.006574	10.006578	3	3. 1
1586	10.006586	10.006589	10.006593	10.006597	10.006600	2	4. 1
1607	10.006608	10.006611	10.006615	10.006619	10.006623	1	5. 2
1628	10.006630	10.006634	10.006637	10.006641	10.006645	0	6. 2
	50'	40'	30'	20'	10'	Minutes	Proport. parts.
Co-secant of 80 degrees, or Secant of 170 degrees.							

LOGARITHMIC SECANTS.

Secant of 10 degrees, or Co-secant of 100 degrees.														
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes	Prop.
0	10.006649	006650	006652	006654	006656	006658	006660	006661	006663	006665	006667	006669	59	1 =
1	10.006671	006673	006675	006676	006678	006680	006682	006684	006686	006688	006689	006691	58	2 =
2	10.006693	006695	006697	006699	006701	006702	006704	006706	006708	006710	006712	006714	57	3 =
3	10.006715	006717	006719	006721	006723	006725	006727	006729	006730	006732	006734	006736	56	4 =
4	10.006738	006740	006742	006744	006745	006747	006749	006751	006753	006755	006757	006758	55	1 =
5	10.006760	006762	006764	006766	006768	006770	006772	006773	006775	006777	006779	006781	54	2 =
6	10.006783	006785	006787	006788	006790	006792	006794	006796	006798	006800	006802	006803	53	3 =
7	10.006805	006807	006809	006811	006813	006815	006817	006819	006820	006822	006824	006826	52	4 =
8	10.006828	006830	006832	006834	006835	006837	006839	006841	006843	006845	006847	006849	51	1 =
9	10.006851	006852	006854	006856	006858	006860	006862	006864	006866	006867	006869	006871	50	2 =
10	10.006873	006875	006877	006879	006881	006883	006884	006886	006888	006890	006892	006894	49	3 =
11	10.006896	006898	006900	006901	006903	006905	006907	006909	006911	006913	006915	006917	48	4 =
12	10.006919	006920	006922	006924	006926	006928	006930	006932	006934	006936	006937	006939	47	1 =
13	10.006941	006943	006945	006947	006949	006951	006953	006955	006956	006958	006960	006962	46	2 =
14	10.006964	006966	006968	006970	006972	006974	006975	006977	006979	006981	006983	006985	45	3 =
15	10.006987	006989	006991	006993	006995	006996	006998	007000	007002	007004	007006	007008	44	4 =
16	10.007010	007012	007014	007015	007017	007019	007021	007023	007025	007027	007029	007031	43	1 =
17	10.007033	007035	007036	007038	007040	007042	007044	007046	007048	007050	007052	007054	42	2 =
18	10.007056	007058	007059	007061	007063	007065	007067	007069	007071	007073	007075	007077	41	3 =
19	10.007079	007080	007082	007084	007086	007088	007090	007092	007094	007096	007097	007100	40	4 =
20	10.007102	007104	007105	007107	007109	007111	007113	007115	007117	007119	007121	007123	39	1 =
21	10.007125	007127	007128	007130	007132	007134	007136	007138	007140	007142	007144	007146	38	2 =
22	10.007148	007150	007152	007154	007155	007157	007159	007161	007163	007165	007167	007169	37	3 =
23	10.007171	007173	007175	007177	007179	007181	007182	007184	007186	007188	007190	007192	36	4 =
24	10.007194	007196	007198	007200	007202	007204	007206	007208	007209	007211	007213	007215	35	1 =
25	10.007217	007219	007221	007223	007225	007227	007229	007231	007233	007235	007237	007239	34	2 =
26	10.007241	007242	007244	007246	007248	007250	007252	007254	007256	007258	007260	007262	33	3 =
27	10.007264	007266	007268	007270	007272	007273	007275	007277	007279	007281	007283	007285	32	4 =
28	10.007287	007289	007291	007293	007295	007297	007299	007301	007303	007305	007307	007308	31	1 =
29	10.007310	007312	007314	007316	007318	007320	007322	007324	007326	007328	007330	007332	30	2 =
30	10.007334	007336	007338	007340	007342	007344	007346	007347	007349	007351	007353	007355	29	3 =
31	10.007357	007359	007361	007363	007365	007367	007369	007371	007373	007375	007377	007379	28	4 =
32	10.007381	007383	007385	007387	007389	007391	007393	007394	007396	007398	007400	007402	27	1 =
33	10.007404	007406	007408	007410	007412	007414	007416	007418	007420	007422	007424	007426	26	2 =
34	10.007428	007430	007432	007434	007436	007438	007440	007442	007444	007446	007448	007449	25	3 =
35	10.007451	007453	007455	007457	007459	007461	007463	007465	007467	007469	007471	007473	24	4 =
36	10.007475	007477	007479	007481	007483	007485	007487	007489	007491	007493	007495	007497	23	1 =
37	10.007499	007501	007503	007505	007507	007509	007511	007513	007515	007516	007518	007520	22	2 =
38	10.007522	007524	007526	007528	007530	007532	007534	007536	007538	007540	007542	007544	21	3 =
39	10.007546	007548	007550	007552	007554	007556	007558	007560	007562	007564	007566	007568	20	4 =
40	10.007570	007572	007574	007576	007578	007580	007582	007584	007586	007588	007590	007592	19	1 =
41	10.007594	007596	007598	007600	007602	007604	007606	007608	007610	007612	007614	007616	18	2 =
42	10.007618	007620	007622	007624	007626	007628	007630	007632	007634	007636	007638	007640	17	3 =
43	10.007642	007643	007645	007647	007649	007651	007653	007655	007657	007659	007661	007663	16	4 =
44	10.007665	007667	007669	007671	007673	007675	007677	007679	007681	007683	007685	007687	15	1 =
45	10.007689	007691	007693	007695	007697	007699	007701	007703	007705	007707	007709	007711	14	2 =
46	10.007713	007715	007717	007719	007721	007723	007725	007727	007729	007731	007733	007735	13	3 =
47	10.007737	007739	007741	007743	007745	007747	007749	007751	007753	007755	007757	007759	12	4 =
48	10.007761	007763	007766	007768	007770	007772	007774	007776	007778	007780	007782	007784	11	1 =
49	10.007786	007788	007790	007792	007794	007796	007798	007800	007802	007804	007806	007808	10	2 =
50	10.007810	007812	007814	007816	007818	007820	007822	007824	007826	007828	007830	007832	9	3 =
51	10.007834	007836	007838	007840	007842	007844	007846	007848	007850	007852	007854	007856	8	4 =
52	10.007858	007860	007862	007864	007866	007868	007870	007872	007874	007876	007878	007880	7	1 =
53	10.007882	007884	007886	007888	007891	007893	007895	007897	007899	007901	007903	007905	6	2 =
54	10.007907	007909	007911	007913	007915	007917	007919	007921	007923	007925	007927	007929	5	3 =
55	10.007931	007933	007935	007937	007939	007941	007943	007945	007947	007949	007951	007953	4	4 =
56	10.007955	007957	007960	007962	007964	007966	007968	007970	007972	007974	007976	007978	3	1 =
57	10.007980	007982	007984	007986	007988	007990	007992	007994	007996	007998	008000	008002	2	2 =
58	10.008004	008006	008008	008010	008012	008015	008017	008019	008021	008023	008025	008027	1	3 =
59	10.008029	008031	008033	008035	008037	008039	008041	008043	008045	008047	008049	008051	0	4 =
	60	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"		
Co-secant of 79 degrees, or Secant of 169 degrees.														
Minutes													Minutes	Prop.

LOGARITHMIC SECANTS.

Secant of 11 degrees, or Co-secant of 101 degrees.													Minutes	Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
08053	08055	08057	08060	08062	08064	08066	08068	08070	08072	08074	08076	59	1 = 0	
08078	08080	08082	08084	08086	08088	08090	08092	08094	08096	08098	08101	58	2. 1	
08103	08105	08107	08109	08111	08113	08115	08117	08119	08121	08123	08125	57	3. 1	
08127	08129	08131	08133	08135	08137	08140	08142	08144	08146	08148	08150	56	4. 2	
08152	08154	08156	08158	08160	08162	08164	08166	08168	08170	08173	08175	55	1 = 0	
08177	08179	08181	08183	08185	08187	08189	08191	08193	08195	08197	08199	54	2. 1	
08201	08203	08206	08208	08210	08212	08214	08216	08218	08220	08222	08224	53	3. 1	
08226	08228	08230	08232	08234	08237	08239	08241	08243	08245	08247	08249	52	4. 2	
08251	08253	08255	08257	08259	08261	08263	08266	08268	08270	08272	08274	51	1 = 0	
08276	08278	08280	08282	08284	08286	08288	08290	08293	08295	08297	08299	50	2. 1	
08301	08303	08305	08307	08309	08311	08313	08315	08317	08320	08322	08324	49	3. 1	
08326	08328	08330	08332	08334	08336	08338	08340	08342	08345	08347	08349	48	4. 2	
08351	08353	08355	08357	08359	08361	08363	08365	08367	08370	08372	08374	47	1 = 0	
08376	08378	08380	08382	08384	08386	08388	08390	08393	08395	08397	08399	46	2. 1	
08401	08403	08405	08407	08409	08411	08413	08416	08418	08420	08422	08424	45	3. 1	
08426	08428	08430	08432	08434	08436	08439	08441	08443	08445	08447	08449	44	4. 2	
08451	08453	08455	08457	08460	08462	08464	08466	08468	08470	08472	08474	43	1 = 0	
08476	08478	08481	08483	08485	08487	08489	08491	08493	08495	08497	08499	42	2. 1	
08502	08504	08506	08508	08510	08512	08514	08516	08518	08521	08523	08525	41	3. 1	
08527	08529	08531	08533	08535	08537	08539	08542	08544	08546	08548	08550	40	4. 2	
08552	08554	08556	08558	08561	08563	08565	08567	08569	08571	08573	08575	39	1 = 0	
08577	08580	08582	08584	08586	08588	08590	08592	08594	08597	08599	08601	38	2. 1	
08603	08605	08607	08609	08611	08613	08616	08618	08620	08622	08624	08626	37	3. 1	
08628	08630	08633	08635	08637	08639	08641	08643	08645	08647	08649	08652	36	4. 2	
08654	08656	08658	08660	08662	08664	08666	08668	08671	08673	08675	08677	35	1 = 0	
08679	08681	08683	08686	08688	08690	08692	08694	08696	08698	08700	08703	34	2. 1	
08705	08707	08709	08711	08713	08715	08718	08720	08722	08724	08726	08728	33	3. 1	
08730	08732	08735	08737	08739	08741	08743	08745	08747	08750	08752	08754	32	4. 2	
08756	08758	08760	08762	08764	08767	08769	08771	08773	08775	08777	08779	31	1 = 0	
08782	08784	08786	08788	08790	08792	08794	08797	08799	08801	08803	08805	30	2. 1	
08807	08809	08812	08814	08816	08818	08820	08822	08824	08827	08829	08831	29	3. 1	
08833	08835	08837	08839	08842	08844	08846	08848	08850	08852	08854	08856	28	4. 2	
08859	08861	08863	08865	08867	08869	08872	08874	08876	08878	08880	08882	27	1 = 0	
08885	08887	08889	08891	08893	08895	08897	08899	08900	08902	08904	08906	26	2. 1	
08908	08910	08913	08915	08917	08919	08921	08923	08925	08928	08930	08932	25	3. 1	
08936	08938	08941	08943	08945	08947	08949	08951	08954	08956	08958	08960	24	4. 2	
08962	08964	08966	08969	08971	08973	08975	08977	08979	08982	08984	08986	23	1 = 0	
08988	08990	08992	08995	08997	08999	09001	09003	09005	09008	09010	09012	22	2. 1	
09014	09016	09019	09021	09023	09025	09027	09029	09031	09034	09036	09038	21	3. 1	
09040	09042	09044	09047	09049	09051	09053	09055	09057	09060	09062	09064	20	4. 2	
09066	09068	09071	09073	09075	09077	09079	09081	09084	09086	09088	09090	19	1 = 0	
09092	09094	09097	09099	09101	09103	09105	09108	09110	09112	09114	09116	18	2. 1	
09118	09121	09123	09125	09127	09129	09132	09134	09136	09138	09140	09142	17	3. 1	
09145	09147	09149	09151	09153	09156	09158	09160	09162	09164	09166	09169	16	4. 2	
09171	09173	09175	09177	09180	09182	09184	09186	09188	09191	09193	09195	15	1 = 0	
09197	09199	09201	09204	09206	09208	09210	09212	09215	09217	09219	09221	14	2. 1	
09223	09226	09228	09230	09232	09234	09237	09239	09241	09243	09245	09248	13	3. 1	
09250	09252	09254	09256	09259	09261	09263	09265	09267	09269	09272	09274	12	4. 2	
09276	09278	09280	09283	09285	09287	09289	09291	09294	09296	09298	09300	11	1 = 0	
09303	09305	09307	09309	09311	09314	09316	09318	09320	09322	09325	09327	10	2. 1	
09329	09331	09333	09336	09338	09340	09342	09344	09347	09349	09351	09353	9	3. 1	
09355	09358	09360	09362	09364	09366	09369	09371	09373	09375	09378	09380	8	4. 2	
09382	09384	09386	09389	09391	09393	09395	09397	09400	09402	09404	09406	7	1 = 0	
09409	09411	09413	09415	09417	09420	09422	09424	09426	09428	09431	09433	6	2. 1	
09435	09437	09440	09442	09444	09446	09448	09451	09453	09455	09457	09460	5	3. 1	
09462	09464	09466	09468	09471	09473	09475	09477	09480	09482	09484	09486	4	4. 2	
09488	09491	09493	09495	09497	09500	09502	09504	09506	09508	09511	09513	3	1 = 0	
09515	09517	09520	09522	09524	09526	09529	09531	09533	09535	09537	09540	2	2. 1	
09542	09544	09546	09549	09551	09553	09555	09558	09560	09562	09564	09566	1	3. 1	
09569	09571	09573	09575	09578	09580	09582	09584	09587	09589	09591	09593	0	4. 2	
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		Minutes	Proport. parts.	
Co-secant of 78 degrees, or Secant of 168 degrees.														

LOGARITHMIC SECANTS.

Secant of 12 degrees; or Co-secant of 102 degrees.															
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proport.	
0	10.009596	009598	009600	009602	009605	009607	009609	009611	009613	009616	009618	009620	59	1 =	
1	10.009622	009625	009627	009629	009631	009634	009636	009638	009640	009643	009645	009647	58	2.	
2	10.009649	009652	009654	009656	009658	009661	009663	009665	009667	009670	009672	009674	57	3.	
3	10.009676	009679	009681	009683	009685	009688	009690	009692	009694	009697	009699	009701	56	4.	
4	10.009703	009706	009708	009710	009712	009715	009717	009719	009721	009724	009726	009728	55	1 =	
5	10.009730	009733	009735	009737	009739	009742	009744	009746	009748	009751	009753	009755	54	2.	
6	10.009757	009760	009762	009764	009766	009769	009771	009773	009775	009778	009780	009782	53	3.	
7	10.009784	009787	009789	009791	009794	009796	009798	009800	009803	009805	009807	009809	52	4.	
8	10.009812	009814	009816	009818	009821	009823	009825	009827	009830	009832	009834	009837	51	1 =	
9	10.009839	009841	009843	009846	009848	009850	009852	009855	009857	009859	009861	009864	50	2.	
10	10.009866	009868	009871	009873	009875	009877	009880	009882	009884	009886	009889	009891	49	3.	
11	10.009893	009896	009898	009900	009902	009905	009907	009909	009911	009914	009916	009918	48	4.	
12	10.009921	009923	009925	009927	009930	009932	009934	009936	009939	009941	009943	009946	47	1 =	
13	10.009948	009950	009952	009955	009957	009959	009962	009964	009966	009968	009971	009973	46	2.	
14	10.009975	009978	009980	009982	009984	009987	009989	009991	009994	009996	009998	010000	45	3.	
15	10.010003	010005	010007	010010	010012	010014	010016	010019	010021	010023	010026	010028	44	4.	
16	10.010030	010032	010035	010037	010039	010042	010044	010046	010048	010051	010053	010055	43	1 =	
17	10.010058	010060	010062	010064	010067	010069	010071	010074	010076	010078	010081	010083	42	2.	
18	10.010085	010087	010090	010092	010094	010097	010099	010101	010103	010106	010108	010110	41	3.	
19	10.010113	010115	010117	010120	010122	010124	010126	010129	010131	010133	010136	010138	40	4.	
20	10.010140	010142	010145	010147	010150	010152	010154	010156	010159	010161	010163	010166	39	1 =	
21	10.010168	010170	010173	010175	010177	010179	010182	010184	010186	010189	010191	010193	38	2.	
22	10.010196	010198	010200	010203	010205	010207	010209	010212	010214	010216	010219	010221	37	3.	
23	10.010223	010226	010228	010230	010233	010235	010237	010240	010242	010244	010246	010249	36	4.	
24	10.010251	010253	010256	010258	010260	010263	010265	010267	010270	010272	010274	010277	35	1 =	
25	10.010279	010281	010284	010286	010288	010290	010293	010295	010297	010300	010302	010304	34	2.	
26	10.010307	010309	010311	010314	010316	010318	010321	010323	010325	010328	010330	010332	33	3.	
27	10.010335	010337	010339	010342	010344	010346	010349	010351	010353	010356	010358	010360	32	4.	
28	10.010363	010365	010367	010369	010372	010374	010376	010379	010381	010383	010386	010388	31	1 =	
29	10.010390	010393	010395	010397	010400	010402	010404	010407	010409	010411	010414	010416	30	2.	
30	10.010418	010421	010423	010425	010428	010430	010432	010435	010437	010439	010442	010444	29	3.	
31	10.010446	010449	010451	010453	010456	010458	010460	010463	010465	010468	010470	010472	28	4.	
32	10.010475	010477	010479	010482	010484	010486	010489	010491	010493	010496	010498	010500	27	1 =	
33	10.010503	010505	010507	010510	010512	010514	010517	010519	010521	010524	010526	010528	26	2.	
34	10.010531	010533	010535	010538	010540	010543	010545	010547	010550	010552	010554	010557	25	3.	
35	10.010559	010561	010564	010566	010568	010571	010573	010575	010578	010580	010582	010585	24	4.	
36	10.010587	010590	010592	010594	010597	010599	010601	010604	010606	010608	010611	010613	23	1 =	
37	10.010615	010618	010620	010623	010625	010627	010630	010632	010634	010637	010639	010641	22	2.	
38	10.010644	010646	010648	010651	010653	010656	010658	010660	010663	010665	010667	010670	21	3.	
39	10.010672	010674	010677	010679	010682	010684	010686	010689	010691	010693	010696	010698	20	4.	
40	10.010700	010703	010705	010708	010710	010712	010715	010717	010719	010722	010724	010726	19	1 =	
41	10.010729	010731	010734	010736	010738	010741	010743	010745	010748	010750	010753	010755	18	2.	
42	10.010757	010760	010762	010764	010767	010769	010772	010774	010776	010779	010781	010783	17	3.	
43	10.010786	010788	010791	010793	010795	010798	010800	010802	010805	010807	010810	010812	16	4.	
44	10.010814	010817	010819	010821	010824	010826	010829	010831	010833	010836	010838	010840	15	1 =	
45	10.010843	010845	010848	010850	010852	010855	010857	010860	010862	010864	010867	010869	14	2.	
46	10.010871	010874	010876	010879	010881	010883	010886	010888	010891	010893	010895	010898	13	3.	
47	10.010900	010903	010905	010907	010910	010912	010914	010917	010919	010922	010924	010926	12	4.	
48	10.010929	010931	010934	010936	010938	010941	010943	010946	010948	010950	010953	010955	11	1 =	
49	10.010958	010960	010962	010965	010967	010970	010972	010974	010977	010979	010981	010984	10	2.	
50	10.010986	010989	010991	010993	010996	010998	011001	011003	011005	011008	011010	011013	9	3.	
51	10.011015	011017	011020	011022	011025	011027	011030	011032	011034	011037	011039	011042	8	4.	
52	10.011044	011046	011049	011051	011054	011056	011058	011061	011063	011066	011068	011070	7	1 =	
53	10.011073	011075	011078	011080	011082	011085	011087	011090	011092	011094	011097	011099	6	2.	
54	10.011102	011104	011107	011109	011111	011114	011116	011119	011121	011123	011126	011128	5	3.	
55	10.011131	011133	011136	011138	011140	011143	011145	011148	011150	011152	011155	011157	4	4.	
56	10.011160	011162	011164	011167	011169	011172	011174	011177	011179	011181	011184	011186	3	1 =	
57	10.011189	011191	011194	011196	011198	011201	011203	011206	011208	011210	011213	011215	2	2.	
58	10.011218	011220	011223	011225	011227	011230	011232	011235	011237	011240	011242	011244	1	3.	
59	10.011247	011249	011252	011254	011257	011259	011261	011264	011266	011269	011271	011274	0	4.	
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'															
Co-secant of 77 degrees, or Secant of 167 degrees.															
Minutes														Minutes	Proport.

Secant of 13 degrees, or Co-secant of 103 degrees.

Secant. of 13 degrees, or Co-secant of 103 degrees.												Minutes	Proper parts.
Y	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
1276	011278	011281	011283	011286	011288	011291	011293	011295	011298	011300	011303	59	1 = 0
1305	011308	011310	011313	011315	011317	011320	011322	011325	011327	011330	011332	58	2 = 1
1334	011337	011339	011342	011344	011347	011349	011351	011354	011356	011359	011361	57	3 = 1
1364	011366	011369	011371	011373	011376	011378	011381	011383	011386	011388	011391	56	4 = 2
1393	011395	011398	011400	011403	011405	011408	011410	011413	011415	011417	011420	55	1 = 0
1422	011425	011427	011430	011432	011435	011437	011439	011442	011444	011447	011449	54	2 = 1
1452	011454	011457	011459	011462	011464	011466	011469	011471	011474	011476	011479	53	3 = 1
1481	011484	011486	011488	011491	011493	011496	011498	011501	011503	011506	011508	52	4 = 2
1511	011513	011516	011518	011520	011523	011525	011528	011530	011533	011535	011538	51	1 = 0
1540	011543	011545	011547	011550	011552	011555	011557	011560	011562	011565	011567	50	2 = 1
1570	011572	011575	011577	011579	011582	011584	011587	011589	011592	011594	011597	49	3 = 1
1599	011602	011604	011607	011609	011612	011614	011616	011619	011621	011624	011626	48	4 = 2
1629	011631	011634	011636	011639	011641	011644	011646	011649	011651	011654	011656	47	1 = 0
1658	011661	011663	011666	011668	011671	011673	011676	011678	011681	011683	011686	46	2 = 1
1688	011691	011693	011696	011698	011701	011703	011705	011708	011710	011713	011715	45	3 = 2
1718	011720	011723	011725	011728	011730	011733	011735	011738	011740	011743	011745	44	4 = 2
1748	011750	011753	011755	011758	011760	011763	011765	011768	011770	011773	011775	43	1 = 1
1777	011780	011782	011785	011787	011790	011792	011795	011797	011800	011802	011805	42	2 = 1
1807	011810	011812	011815	011817	011820	011822	011825	011827	011830	011832	011835	41	3 = 2
1837	011840	011842	011845	011847	011850	011852	011855	011857	011860	011862	011865	40	4 = 2
1867	011870	011872	011875	011877	011880	011882	011885	011887	011890	011892	011895	39	1 = 1
1897	011900	011902	011905	011907	011910	011912	011915	011917	011920	011922	011925	38	2 = 1
1927	011930	011932	011935	011937	011940	011942	011945	011947	011950	011952	011955	37	3 = 2
1957	011960	011962	011965	011967	011970	011972	011975	011977	011980	011982	011985	36	4 = 2
1987	011990	011992	011995	011997	012000	012002	012005	012007	012010	012012	012015	35	1 = 1
2017	012020	012022	012025	012027	012030	012032	012035	012037	012040	012042	012045	34	2 = 1
2047	012050	012052	012055	012057	012060	012063	012065	012068	012070	012073	012075	33	3 = 2
2078	012080	012083	012085	012088	012090	012093	012095	012098	012100	012103	012105	32	4 = 2
2108	012110	012113	012115	012118	012120	012123	012126	012128	012131	012133	012136	31	1 = 1
2138	012141	012143	012146	012148	012151	012153	012156	012158	012161	012163	012166	30	2 = 1
2168	012171	012173	012176	012179	012181	012184	012186	012189	012191	012194	012196	29	3 = 2
2199	012201	012204	012206	012209	012211	012214	012217	012219	012222	012224	012227	28	4 = 2
2229	012232	012234	012237	012239	012242	012244	012247	012249	012252	012255	012257	27	1 = 1
2260	012262	012265	012267	012270	012272	012275	012277	012280	012282	012285	012288	26	2 = 1
2290	012293	012295	012298	012300	012303	012305	012308	012310	012313	012315	012318	25	3 = 2
2321	012323	012326	012328	012331	012333	012336	012338	012341	012343	012346	012349	24	4 = 2
2351	012354	012356	012359	012361	012364	012366	012369	012371	012374	012377	012379	23	1 = 1
2382	012384	012387	012389	012392	012394	012397	012400	012402	012405	012407	012410	22	2 = 1
2412	012415	012417	012420	012423	012425	012428	012430	012433	012435	012438	012440	21	3 = 2
2443	012446	012448	012451	012453	012456	012458	012461	012463	012466	012469	012471	20	4 = 2
2474	012476	012479	012481	012484	012486	012489	012492	012494	012497	012499	012502	19	1 = 1
2504	012507	012510	012512	012515	012517	012520	012522	012525	012527	012530	012533	18	2 = 1
2535	012538	012540	012543	012545	012548	012551	012553	012556	012558	012561	012563	17	3 = 2
2566	012569	012571	012574	012576	012579	012581	012584	012587	012589	012592	012594	16	4 = 2
2597	012599	012602	012605	012607	012610	012612	012615	012617	012620	012623	012625	15	1 = 1
2628	012630	012633	012635	012638	012641	012643	012646	012648	012651	012654	012656	14	2 = 1
2659	012661	012664	012666	012669	012672	012674	012677	012679	012682	012684	012687	13	3 = 2
2690	012692	012695	012697	012700	012703	012705	012708	012710	012713	012715	012718	12	4 = 2
2721	012723	012726	012728	012731	012734	012736	012739	012741	012744	012747	012749	11	1 = 1
2752	012754	012757	012759	012762	012765	012767	012770	012772	012775	012778	012780	10	2 = 1
2783	012785	012788	012791	012793	012796	012798	012801	012804	012806	012809	012811	9	3 = 2
2814	012817	012819	012822	012824	012827	012830	012832	012835	012837	012840	012842	8	4 = 2
2845	012848	012850	012853	012855	012858	012861	012863	012866	012868	012871	012874	7	1 = 1
2876	012879	012882	012884	012887	012889	012892	012895	012897	012900	012902	012905	6	2 = 1
2908	012910	012913	012915	012918	012921	012923	012926	012928	012931	012934	012936	5	3 = 2
2939	012941	012944	012947	012949	012952	012954	012957	012960	012962	012965	012968	4	4 = 2
2970	012973	012975	012978	012981	012983	012986	012988	012991	012994	012996	012999	3	1 = 1
3002	013004	013007	013009	013012	013015	013017	013020	013022	013025	013028	013030	2	2 = 1
3033	013036	013038	013041	013043	013046	013049	013051	013054	013056	013059	013062	1	3 = 2
3064	013067	013070	013072	013075	013077	013080	013083	013085	013088	013091	013093	0	4 = 2
Y	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proper parts.
Co-secant of 76 degrees, or Secant of 166 degrees.													

LOGARITHMIC SECANTS.

Secant of 14 degrees, or Co-secant of 104 degrees.														
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes	Proport.
0	10.013096	013098	013101	013104	013106	013109	013112	013114	013117	013119	013122	013125	59	1 =
1	10.013127	013130	013133	013135	013138	013140	013143	013146	013148	013151	013154	013156	58	2 =
2	10.013159	013162	013164	013167	013169	013172	013175	013177	013180	013183	013185	013188	57	3 =
3	10.013191	013193	013196	013198	013201	013204	013206	013209	013212	013214	013217	013219	56	4 =
4	10.013222	013225	013227	013230	013233	013235	013238	013241	013243	013246	013249	013251	55	1 =
5	10.013254	013256	013259	013262	013264	013267	013270	013272	013275	013278	013280	013283	54	2 =
6	10.013286	013288	013291	013293	013296	013299	013301	013304	013307	013309	013312	013315	53	3 =
7	10.013317	013320	013323	013325	013328	013331	013333	013336	013338	013341	013344	013346	52	4 =
8	10.013349	013352	013354	013357	013360	013362	013365	013368	013370	013373	013376	013378	51	1 =
9	10.013381	013384	013386	013389	013392	013394	013397	013399	013402	013405	013407	013410	50	2 =
10	10.013413	013415	013418	013421	013423	013426	013429	013431	013434	013437	013439	013442	49	3 =
11	10.013445	013447	013450	013453	013455	013458	013461	013463	013466	013469	013471	013474	48	4 =
12	10.013477	013479	013482	013485	013487	013490	013493	013495	013498	013501	013503	013506	47	1 =
13	10.013509	013511	013514	013517	013519	013522	013525	013527	013530	013533	013535	013538	46	2 =
14	10.013541	013543	013546	013549	013551	013554	013557	013559	013562	013565	013567	013570	45	3 =
15	10.013573	013575	013578	013581	013583	013586	013589	013591	013594	013597	013599	013602	44	4 =
16	10.013605	013607	013610	013613	013616	013618	013621	013624	013626	013629	013632	013634	43	1 =
17	10.013637	013640	013642	013645	013648	013650	013653	013656	013658	013661	013664	013666	42	2 =
18	10.013669	013672	013674	013677	013680	013683	013685	013688	013691	013693	013696	013699	41	3 =
19	10.013701	013704	013707	013709	013712	013715	013717	013720	013723	013726	013728	013731	40	4 =
20	10.013734	013736	013739	013742	013744	013747	013750	013752	013755	013758	013761	013763	39	1 =
21	10.013766	013769	013771	013774	013777	013779	013782	013785	013787	013790	013793	013796	38	2 =
22	10.013798	013801	013804	013806	013809	013812	013814	013817	013820	013823	013825	013828	37	3 =
23	10.013831	013833	013836	013839	013841	013844	013847	013850	013852	013855	013858	013860	36	4 =
24	10.013863	013866	013868	013871	013874	013877	013879	013882	013885	013887	013890	013893	35	1 =
25	10.013895	013898	013901	013904	013906	013909	013912	013914	013917	013920	013923	013925	34	2 =
26	10.013928	013931	013934	013936	013939	013942	013944	013947	013950	013952	013955	013958	33	3 =
27	10.013961	013963	013966	013969	013971	013974	013977	013980	013982	013985	013988	013990	32	4 =
28	10.013993	013996	013999	014001	014004	014007	014009	014012	014015	014018	014020	014023	31	1 =
29	10.014026	014028	014031	014034	014037	014039	014042	014045	014047	014050	014053	014056	30	2 =
30	10.014058	014061	014064	014067	014069	014072	014075	014077	014080	014083	014086	014088	29	3 =
31	10.014091	014094	014097	014099	014102	014105	014107	014110	014113	014116	014118	014121	28	4 =
32	10.014124	014127	014129	014132	014135	014137	014140	014143	014146	014148	014151	014154	27	1 =
33	10.014157	014159	014162	014165	014167	014170	014173	014176	014178	014181	014184	014187	26	2 =
34	10.014189	014192	014195	014198	014200	014203	014206	014209	014211	014214	014217	014219	25	3 =
35	10.014222	014225	014228	014230	014233	014236	014239	014241	014244	014247	014250	014252	24	4 =
36	10.014255	014258	014261	014263	014266	014269	014272	014274	014277	014280	014283	014285	23	1 =
37	10.014288	014291	014294	014296	014299	014302	014304	014307	014310	014313	014315	014318	22	2 =
38	10.014321	014324	014326	014329	014332	014335	014337	014340	014343	014346	014348	014351	21	3 =
39	10.014354	014357	014359	014362	014365	014368	014371	014373	014376	014379	014382	014384	20	4 =
40	10.014387	014390	014393	014395	014398	014401	014404	014406	014409	014412	014415	014417	19	1 =
41	10.014420	014423	014426	014428	014431	014434	014437	014439	014442	014445	014448	014450	18	2 =
42	10.014453	014456	014459	014462	014464	014467	014470	014473	014475	014478	014481	014484	17	3 =
43	10.014486	014489	014492	014495	014497	014500	014503	014506	014509	014511	014514	014517	16	4 =
44	10.014520	014522	014525	014528	014531	014533	014536	014539	014542	014545	014547	014550	15	1 =
45	10.014553	014556	014558	014561	014564	014567	014570	014572	014575	014578	014581	014583	14	2 =
46	10.014586	014589	014592	014594	014597	014600	014603	014606	014608	014611	014614	014617	13	3 =
47	10.014619	014622	014625	014628	014631	014633	014636	014639	014642	014644	014647	014650	12	4 =
48	10.014653	014656	014658	014661	014664	014667	014669	014672	014675	014678	014681	014683	11	1 =
49	10.014686	014689	014692	014695	014697	014700	014703	014706	014708	014711	014714	014717	10	2 =
50	10.014720	014722	014725	014728	014731	014734	014736	014739	014742	014745	014748	014750	9	3 =
51	10.014753	014756	014759	014761	014764	014767	014770	014773	014775	014778	014781	014784	8	4 =
52	10.014787	014789	014792	014795	014798	014801	014803	014806	014809	014812	014815	014817	7	1 =
53	10.014820	014823	014826	014829	014831	014834	014837	014840	014843	014845	014848	014851	6	2 =
54	10.014854	014857	014859	014862	014865	014868	014871	014873	014876	014879	014882	014885	5	3 =
55	10.014887	014890	014893	014896	014899	014901	014904	014907	014910	014913	014915	014918	4	4 =
56	10.014921	014924	014927	014930	014932	014935	014938	014941	014944	014946	014949	014952	3	1 =
57	10.014955	014958	014960	014963	014966	014969	014972	014974	014977	014980	014983	014986	2	2 =
58	10.014989	014991	014994	014997	015000	015003	015005	015008	015011	015014	015017	015020	1	3 =
59	10.015022	015025	015028	015031	015034	015036	015039	015042	015045	015048	015051	015053	0	4 =
Co-secant of 75 degrees, or Secant of 165 degrees.														

LOGARITHMIC SECANTS.

Secant of 15 degrees, or Co-secant of 105 degrees.												Minutes	Proport. parts.
1°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
5056	015059	015062	015065	015067	015070	015073	015076	015079	015082	015084	015087	59	1 = 1
5090	015093	015096	015099	015101	015104	015107	015110	015113	015115	015118	015121	58	2. 1
5124	015127	015130	015133	015135	015138	015141	015144	015147	015149	015152	015155	57	3. 2
5158	015161	015164	015166	015169	015172	015175	015178	015181	015183	015186	015189	56	4. 2
5192	015195	015198	015200	015203	015206	015209	015212	015215	015217	015220	015223	55	1 = 1
5226	015229	015232	015234	015237	015240	015243	015246	015249	015251	015254	015257	54	2. 1
5260	015263	015266	015269	015271	015274	015277	015280	015283	015286	015288	015291	53	3. 2
5294	015297	015300	015303	015305	015308	015311	015314	015317	015320	015323	015325	52	4. 2
5328	015331	015334	015337	015340	015342	015345	015348	015351	015354	015357	015360	51	1 = 1
5362	015365	015368	015371	015374	015377	015380	015382	015385	015388	015391	015394	50	2. 1
5397	015399	015402	015405	015408	015411	015414	015417	015419	015422	015425	015428	49	3. 2
5431	015434	015437	015439	015442	015445	015448	015451	015454	015457	015459	015462	48	4. 2
5465	015468	015471	015474	015477	015480	015482	015485	015488	015491	015494	015497	47	1 = 1
5500	015502	015505	015508	015511	015514	015517	015520	015522	015525	015528	015531	46	2. 1
5534	015537	015540	015543	015545	015548	015551	015554	015557	015560	015563	015565	45	3. 2
5568	015571	015574	015577	015580	015583	015586	015588	015591	015594	015597	015600	44	4. 2
5603	015606	015609	015611	015614	015617	015620	015623	015626	015629	015632	015634	43	1 = 1
5637	015640	015643	015646	015649	015652	015655	015657	015660	015663	015666	015669	42	2. 1
5672	015675	015678	015681	015684	015687	015690	015692	015695	015698	015701	015704	41	3. 2
5706	015709	015712	015715	015718	015721	015724	015727	015730	015732	015735	015738	40	4. 2
5741	015744	015747	015750	015753	015756	015758	015761	015764	015767	015770	015773	39	1 = 1
5776	015779	015782	015784	015787	015790	015793	015796	015799	015802	015805	015808	38	2. 1
5810	015813	015816	015819	015822	015825	015828	015831	015834	015836	015839	015842	37	3. 2
5845	015848	015851	015854	015857	015860	015863	015865	015868	015871	015874	015877	36	4. 2
5880	015883	015886	015889	015892	015894	015897	015900	015903	015906	015909	015912	35	1 = 1
5915	015918	015921	015923	015926	015929	015932	015935	015938	015941	015944	015947	34	2. 1
5950	015953	015955	015958	015961	015964	015967	015970	015973	015976	015979	015982	33	3. 2
5985	015987	015990	015993	015996	015999	016002	016005	016008	016011	016014	016017	32	4. 2
6019	016022	016025	016028	016031	016034	016037	016040	016043	016046	016049	016052	31	1 = 1
6054	016057	016060	016063	016066	016069	016072	016075	016078	016081	016084	016087	30	2. 1
6089	016092	016095	016098	016101	016104	016107	016110	016113	016116	016119	016122	29	3. 2
6124	016127	016130	016133	016136	016139	016142	016145	016148	016151	016154	016157	28	4. 2
6160	016163	016165	016168	016171	016174	016177	016180	016183	016186	016189	016192	27	1 = 1
6195	016198	016201	016204	016207	016209	016212	016215	016218	016221	016224	016227	26	2. 1
6230	016233	016236	016239	016242	016245	016247	016250	016253	016256	016259	016262	25	3. 2
6265	016268	016271	016274	016277	016280	016283	016286	016289	016292	016294	016297	24	4. 2
6300	016303	016306	016309	016312	016315	016318	016321	016324	016327	016330	016333	23	1 = 1
6336	016339	016342	016344	016347	016350	016353	016356	016359	016362	016365	016368	22	2. 1
6371	016374	016377	016380	016383	016386	016389	016392	016395	016398	016400	016403	21	3. 2
6406	016409	016412	016415	016418	016421	016424	016427	016430	016433	016436	016439	20	4. 2
6442	016445	016448	016451	016454	016457	016459	016462	016465	016468	016471	016474	19	1 = 1
6477	016480	016483	016486	016489	016492	016495	016498	016501	016504	016507	016510	18	2. 1
6513	016516	016519	016522	016525	016528	016530	016533	016536	016539	016542	016545	17	3. 2
6548	016551	016554	016557	016560	016563	016566	016569	016572	016575	016578	016581	16	4. 2
6584	016587	016590	016593	016596	016599	016602	016605	016608	016611	016613	016616	15	1 = 1
6619	016622	016625	016628	016631	016634	016637	016640	016643	016646	016649	016652	14	2. 1
6655	016658	016661	016664	016667	016670	016673	016676	016679	016682	016685	016688	13	3. 2
6691	016694	016697	016700	016703	016706	016709	016712	016715	016718	016721	016723	12	4. 2
6726	016729	016732	016735	016738	016741	016744	016747	016750	016753	016756	016759	11	1 = 1
6762	016765	016768	016771	016774	016777	016780	016783	016786	016789	016792	016795	10	2. 1
6798	016801	016804	016807	016810	016813	016816	016819	016822	016825	016828	016831	9	3. 2
6834	016837	016840	016843	016846	016849	016852	016855	016858	016861	016864	016867	8	4. 2
6870	016873	016876	016879	016882	016885	016888	016891	016894	016897	016900	016903	7	1 = 1
6906	016909	016912	016915	016918	016921	016924	016927	016930	016933	016936	016939	6	2. 1
6942	016945	016948	016951	016954	016957	016960	016963	016966	016969	016972	016975	5	3. 2
6978	016981	016984	016987	016990	016993	016996	016999	017002	017005	017008	017011	4	4. 2
7014	017017	017020	017023	017026	017029	017032	017035	017038	017041	017044	017047	3	1 = 1
7050	017053	017056	017059	017062	017065	017068	017071	017074	017077	017080	017083	2	2. 1
7086	017089	017092	017095	017098	017101	017104	017107	017110	017113	017116	017119	1	3. 2
7122	017125	017128	017131	017134	017137	017140	017143	017146	017149	017152	017155	0	4. 2
1°	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-secant of 74 degrees, or Secant of 164 degrees.													

TABLE XXXV.
LOGARITHMIC SECANTS.

Secant of 16 degrees, or Co-secant of 106 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	
0	10.017158	017161	017164	017167	017170	017173	017176	017179	017182	017185	017189	017192	59	
1	10.017195	017198	017201	017204	017207	017210	017213	017216	017219	017222	017225	017228	58	
2	10.017231	017234	017237	017240	017243	017246	017249	017252	017255	017258	017261	017264	57	
3	10.017267	017270	017273	017276	017279	017282	017285	017288	017291	017294	017297	017300	56	
4	10.017304	017307	017310	017313	017316	017319	017322	017325	017328	017331	017334	017337	55	
5	10.017340	017343	017346	017349	017352	017355	017358	017361	017364	017367	017370	017373	54	
6	10.017376	017379	017382	017385	017389	017392	017395	017398	017401	017404	017407	017410	53	
7	10.017413	017416	017419	017422	017425	017428	017431	017434	017437	017440	017443	017446	52	
8	10.017449	017452	017455	017459	017462	017465	017468	017471	017474	017477	017480	017483	51	
9	10.017486	017489	017492	017495	017498	017501	017504	017507	017510	017513	017516	017519	50	
10	10.017523	017526	017529	017532	017535	017538	017541	017544	017547	017550	017553	017556	49	
11	10.017559	017562	017565	017568	017571	017574	017578	017581	017584	017587	017590	017593	48	
12	10.017596	017599	017602	017605	017608	017611	017614	017617	017620	017623	017626	017629	47	
13	10.017633	017636	017639	017642	017645	017648	017651	017654	017657	017660	017663	017666	46	
14	10.017669	017672	017675	017679	017682	017685	017688	017691	017694	017697	017700	017703	45	
15	10.017706	017709	017712	017715	017718	017722	017725	017728	017731	017734	017737	017740	44	
16	10.017743	017746	017749	017752	017755	017758	017761	017765	017768	017771	017774	017777	43	
17	10.017780	017783	017786	017789	017792	017795	017798	017801	017804	017807	017811	017814	42	
18	10.017817	017820	017823	017826	017829	017832	017835	017838	017841	017845	017848	017851	41	
19	10.017854	017857	017860	017863	017866	017869	017872	017875	017878	017882	017885	017888	40	
20	10.017891	017894	017897	017900	017903	017906	017909	017912	017915	017919	017922	017925	39	
21	10.017928	017931	017934	017937	017940	017943	017946	017949	017953	017956	017959	017962	38	
22	10.017965	017968	017971	017974	017977	017980	017983	017987	017990	017993	017996	017999	37	
23	10.018002	018005	018008	018011	018014	018017	018021	018024	018027	018030	018033	018036	36	
24	10.018039	018042	018045	018048	018052	018055	018058	018061	018064	018067	018070	018073	35	
25	10.018076	018079	018083	018086	018089	018092	018095	018098	018101	018104	018107	018111	34	
26	10.018114	018117	018120	018123	018126	018129	018132	018135	018138	018142	018145	018148	33	
27	10.018151	018154	018157	018160	018163	018166	018170	018173	018176	018179	018182	018185	32	
28	10.018188	018191	018194	018198	018201	018204	018207	018210	018213	018216	018219	018222	31	
29	10.018226	018229	018232	018235	018238	018241	018244	018247	018251	018254	018257	018260	30	
30	10.018263	018266	018269	018272	018275	018279	018282	018285	018288	018291	018294	018297	29	
31	10.018300	018304	018307	018310	018313	018316	018319	018322	018325	018328	018332	018335	28	
32	10.018338	018341	018344	018347	018350	018354	018357	018360	018363	018366	018369	018372	27	
33	10.018375	018379	018382	018385	018388	018391	018394	018397	018400	018404	018407	018410	26	
34	10.018413	018416	018419	018422	018426	018429	018432	018435	018438	018441	018444	018447	25	
35	10.018451	018454	018457	018460	018463	018466	018469	018473	018476	018479	018482	018485	24	
36	10.018488	018491	018495	018498	018501	018504	018507	018510	018513	018516	018520	018523	23	
37	10.018526	018529	018532	018535	018538	018542	018545	018548	018551	018554	018557	018560	22	
38	10.018564	018567	018570	018573	018576	018579	018583	018586	018589	018592	018595	018598	21	
39	10.018601	018605	018608	018611	018614	018617	018620	018623	018627	018630	018633	018636	20	
40	10.018639	018642	018645	018649	018652	018655	018658	018661	018664	018668	018671	018674	19	
41	10.018677	018680	018683	018687	018690	018693	018696	018699	018702	018705	018709	018712	18	
42	10.018715	018718	018721	018724	018728	018731	018734	018737	018740	018743	018747	018750	17	
43	10.018753	018756	018759	018762	018765	018769	018772	018775	018778	018781	018784	018788	16	
44	10.018791	018794	018797	018800	018803	018807	018810	018813	018816	018819	018822	018826	15	
45	10.018829	018832	018835	018838	018841	018845	018848	018851	018854	018857	018860	018864	14	
46	10.018867	018870	018873	018876	018880	018883	018886	018889	018892	018895	018899	018902	13	
47	10.018905	018908	018911	018914	018918	018921	018924	018927	018930	018934	018937	018940	12	
48	10.018943	018946	018949	018953	018956	018959	018962	018965	018968	018972	018975	018978	11	
49	10.018981	018984	018988	018991	018994	018997	019000	019003	019007	019010	019013	019016	10	
50	10.019019	019023	019026	019029	019032	019035	019039	019042	019045	019048	019051	019054	9	
51	10.019058	019061	019064	019067	019070	019074	019077	019080	019083	019086	019090	019093	8	
52	10.019096	019099	019102	019106	019109	019112	019115	019118	019121	019125	019128	019131	7	
53	10.019134	019137	019141	019144	019147	019150	019153	019157	019160	019163	019166	019169	6	
54	10.019173	019176	019179	019182	019185	019189	019192	019195	019198	019201	019205	019208	5	
55	10.019211	019214	019217	019221	019224	019227	019230	019233	019237	019240	019243	019246	4	
56	10.019249	019253	019256	019259	019262	019265	019269	019272	019275	019278	019282	019285	3	
57	10.019288	019291	019294	019298	019301	019304	019307	019310	019314	019317	019320	019323	2	
58	10.019326	019330	019333	019336	019339	019343	019346	019349	019352	019355	019359	019362	1	
59	10.019365	019368	019371	019375	019378	019381	019384	019388	019391	019394	019397	019400	0	
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'														
Co-secant of 73 degrees, or Secant of 163 degrees.														
Minutes													Minutes	Proportional Parts

LOGARITHMIC SECANTS.

Secant of 17 degrees, or Co-secant of 107 degrees.											Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
404019407	0194100	0194130	0194170	0194200	0194230	0194260	0194290	0194330	0194360	0194390	59	1" = 1
442019445	0194440	0194452	0194455	0194458	0194462	0194465	0194468	0194471	0194475	0194478	58	2. 1
481019484	0194870	0194891	0194901	0194904	0194907	0194900	0194904	0194907	0194910	0194913	57	3. 2
520019523	0195260	0195290	0195330	0195360	0195390	0195420	0195460	0195490	0195520	0195550	56	4. 3
558019562	0195660	0195680	0195710	0195750	0195780	0195810	0195840	0195880	0195910	0195940	55	1" = 1
597019600	0196040	0196070	0196100	0196130	0196170	0196200	0196230	0196260	0196300	0196330	54	2. 1
636019639	0196430	0196460	0196490	0196520	0196560	0196590	0196620	0196650	0196680	0196720	53	3. 2
675019678	0196810	0196850	0196880	0196910	0196940	0196980	0197010	0197040	0197070	0197110	52	4. 3
714019717	0197200	0197240	0197270	0197300	0197330	0197370	0197400	0197430	0197460	0197500	51	1" = 1
753019756	0197590	0197630	0197660	0197690	0197720	0197760	0197790	0197820	0197850	0197890	50	2. 1
792019795	0197980	0198020	0198050	0198080	0198110	0198150	0198180	0198210	0198240	0198280	49	3. 2
831019834	0198370	0198410	0198440	0198470	0198500	0198540	0198570	0198600	0198630	0198670	48	4. 3
870019873	0198770	0198800	0198830	0198860	0198900	0198930	0198960	0198990	0199030	0199060	47	1" = 1
909019912	0199160	0199190	0199220	0199250	0199290	0199320	0199350	0199390	0199420	0199450	46	2. 1
948019951	0199550	0199580	0199610	0199650	0199680	0199710	0199740	0199780	0199810	0199840	45	3. 2
988019991	0199940	0199970	0200000	0200040	0200070	0200100	0200140	0200170	0200200	0200230	44	4. 3
027020030	0200330	0200370	0200400	0200430	0200460	0200500	0200530	0200560	0200590	0200630	43	1" = 1
066020069	0200730	0200760	0200790	0200820	0200860	0200890	0200920	0200960	0200990	0201020	42	2. 1
105020109	0201120	0201150	0201180	0201220	0201250	0201280	0201320	0201350	0201380	0201410	41	3. 2
145020148	0201510	0201550	0201580	0201610	0201640	0201680	0201710	0201740	0201780	0201810	40	4. 3
184020187	0201910	0201940	0201970	0202010	0202040	0202070	0202100	0202140	0202170	0202200	39	1" = 1
224020227	0202300	0202330	0202370	0202400	0202430	0202470	0202500	0202530	0202560	0202600	38	2. 1
263020266	0202700	0202730	0202760	0202800	0202830	0202860	0202890	0202930	0202960	0202990	37	3. 2
303020306	0203090	0203130	0203160	0203190	0203220	0203260	0203290	0203320	0203360	0203390	36	4. 3
342020345	0203490	0203520	0203550	0203590	0203620	0203660	0203690	0203720	0203750	0203780	35	1" = 1
381020385	0203880	0203920	0203950	0203980	0204020	0204050	0204080	0204120	0204150	0204180	34	2. 1
421020425	0204280	0204310	0204350	0204380	0204410	0204450	0204480	0204510	0204550	0204580	33	3. 2
461020464	0204680	0204710	0204740	0204780	0204810	0204840	0204880	0204910	0204940	0204980	32	4. 3
501020504	0205070	0205110	0205140	0205170	0205210	0205240	0205270	0205310	0205340	0205370	31	1" = 1
541020544	0205470	0205510	0205540	0205570	0205610	0205640	0205670	0205700	0205740	0205770	30	2. 1
580020584	0205870	0205900	0205940	0205970	0206000	0206040	0206070	0206100	0206140	0206170	29	3. 2
620020624	0206270	0206300	0206340	0206370	0206400	0206440	0206470	0206500	0206540	0206570	28	4. 3
660020664	0206670	0206700	0206730	0206770	0206800	0206830	0206870	0206900	0206930	0206970	27	1" = 1
700020703	0207070	0207100	0207130	0207170	0207200	0207230	0207270	0207300	0207330	0207370	26	2. 1
740020743	0207470	0207500	0207530	0207570	0207600	0207630	0207670	0207700	0207730	0207770	25	3. 2
780020783	0207870	0207900	0207930	0207970	0208000	0208030	0208070	0208100	0208130	0208170	24	4. 3
820020823	0208270	0208300	0208340	0208370	0208400	0208440	0208470	0208500	0208540	0208570	23	1" = 1
860020864	0208670	0208700	0208740	0208770	0208800	0208840	0208870	0208900	0208940	0208970	22	2. 1
900020904	0209070	0209100	0209140	0209170	0209200	0209240	0209270	0209310	0209340	0209370	21	3. 2
941020944	0209470	0209510	0209540	0209570	0209610	0209640	0209670	0209710	0209740	0209770	20	4. 3
981020984	0209870	0209910	0209940	0209980	0210010	0210040	0210080	0210110	0210140	0210180	19	1" = 1
0210201024	0210280	0210310	0210340	0210380	0210410	0210450	0210480	0210510	0210550	0210580	18	2. 1
061021065	0210680	0210710	0210750	0210780	0210820	0210850	0210880	0210920	0210950	0210980	17	3. 2
102021105	0211080	0211120	0211150	0211190	0211220	0211250	0211290	0211320	0211350	0211390	16	4. 3
142021145	0211490	0211520	0211560	0211590	0211620	0211660	0211690	0211720	0211760	0211790	15	1" = 1
182021185	0211890	0211930	0211960	0211990	0212030	0212060	0212090	0212120	0212160	0212200	14	2. 1
223021225	0212300	0212330	0212360	0212400	0212430	0212470	0212500	0212530	0212570	0212600	13	3. 2
263021267	0212700	0212740	0212770	0212800	0212840	0212870	0212900	0212940	0212970	0213010	12	4. 3
304021307	0213110	0213140	0213180	0213210	0213240	0213280	0213310	0213340	0213380	0213410	11	1" = 1
345021348	0213510	0213550	0213580	0213610	0213650	0213680	0213720	0213750	0213780	0213820	10	2. 1
385021389	0213920	0213950	0213990	0214020	0214060	0214090	0214120	0214160	0214190	0214220	9	3. 2
426021429	0214330	0214360	0214390	0214430	0214460	0214500	0214530	0214560	0214600	0214630	8	4. 3
467021470	0214730	0214770	0214800	0214840	0214870	0214900	0214940	0214970	0215000	0215040	7	1" = 1
508021511	0215140	0215170	0215210	0215240	0215280	0215310	0215340	0215380	0215410	0215450	6	2. 1
549021551	0215550	0215580	0215620	0215650	0215680	0215720	0215750	0215790	0215820	0215850	5	3. 2
590021592	0215960	0215990	0216030	0216060	0216090	0216130	0216160	0216200	0216230	0216260	4	4. 3
631021633	0216370	0216400	0216430	0216470	0216500	0216540	0216570	0216600	0216640	0216670	3	1" = 1
672021674	0216770	0216810	0216840	0216880	0216910	0216950	0216980	0217010	0217050	0217080	2	2. 1
713021715	0217180	0217220	0217250	0217290	0217320	0217360	0217390	0217420	0217460	0217490	1	3. 2
754021756	0217590	0217630	0217660	0217700	0217730	0217770	0217800	0217830	0217870	0217900	0	4. 3
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.
Co-secant of 72 degrees, or Secant of 162 degrees.											Minutes	Proport. parts.

LOGARITHMIC SECANTS.

Minutes	Secant of 18 degrees, or Co-secant of 108 degrees.												Minutes	Prop. Parts.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10.021794	021797	021800	021804	021807	021811	021814	021818	021821	021824	021828	021831	59	1 =
1	10.021835	021838	021842	021845	021848	021852	021855	021859	021862	021866	021869	021872	58	2.
2	10.021876	021879	021883	021886	021890	021893	021896	021900	021903	021907	021910	021914	57	3.
3	10.021917	021920	021924	021927	021931	021934	021938	021941	021944	021948	021951	021955	56	4.
4	10.021958	021962	021965	021968	021972	021975	021979	021982	021986	021989	021992	021996	55	1 =
5	10.021999	022003	022006	022010	022013	022017	022020	022023	022027	022030	022034	022037	54	2.
6	10.022041	022044	022048	022051	022054	022058	022061	022065	022068	022072	022075	022079	53	3.
7	10.022082	022085	022089	022092	022096	022099	022103	022106	022110	022113	022116	022120	52	4.
8	10.022123	022127	022130	022134	022137	022141	022144	022147	022151	022154	022158	022161	51	1 =
9	10.022165	022168	022172	022175	022179	022182	022185	022189	022192	022196	022199	022203	50	2.
10	10.022206	022210	022213	022216	022220	022223	022227	022230	022234	022237	022241	022244	49	3.
11	10.022248	022251	022255	022258	022261	022265	022268	022272	022275	022279	022282	022286	48	4.
12	10.022289	022293	022296	022300	022303	022306	022310	022313	022317	022320	022324	022327	47	1 =
13	10.022331	022334	022338	022341	022345	022348	022351	022355	022358	022362	022365	022369	46	2.
14	10.022372	022376	022379	022383	022386	022390	022393	022397	022400	022403	022407	022410	45	3.
15	10.022414	022417	022421	022424	022428	022431	022435	022438	022442	022445	022449	022452	44	4.
16	10.022456	022459	022463	022466	022469	022473	022476	022480	022483	022487	022490	022494	43	1 =
17	10.022497	022501	022504	022508	022511	022515	022518	022522	022525	022529	022532	022536	42	2.
18	10.022539	022543	022546	022550	022553	022556	022560	022563	022567	022570	022574	022577	41	3.
19	10.022581	022584	022588	022591	022595	022598	022602	022605	022609	022612	022616	022619	40	4.
20	10.022623	022626	022630	022633	022637	022640	022644	022647	022651	022654	022658	022661	39	1 =
21	10.022665	022668	022672	022675	022679	022682	022686	022689	022693	022696	022700	022703	38	2.
22	10.022707	022710	022714	022717	022721	022724	022728	022731	022735	022738	022742	022745	37	3.
23	10.022749	022752	022756	022759	022763	022766	022770	022773	022777	022780	022784	022787	36	4.
24	10.022791	022794	022798	022801	022805	022808	022812	022815	022819	022822	022826	022829	35	1 =
25	10.022833	022836	022840	022843	022847	022850	022854	022857	022861	022864	022868	022871	34	2.
26	10.022875	022878	022882	022885	022889	022892	022896	022899	022903	022906	022910	022913	33	3.
27	10.022917	022920	022924	022927	022931	022934	022938	022941	022945	022948	022952	022955	32	4.
28	10.022959	022962	022966	022969	022973	022976	022980	022983	022987	022991	022994	022998	31	1 =
29	10.023001	023005	023008	023012	023015	023019	023022	023026	023029	023033	023036	023040	30	2.
30	10.023043	023047	023050	023054	023057	023061	023065	023068	023072	023075	023079	023082	29	3.
31	10.023086	023089	023093	023096	023100	023103	023107	023110	023114	023117	023121	023124	28	4.
32	10.023128	023132	023135	023139	023142	023146	023149	023153	023156	023160	023163	023167	27	1 =
33	10.023170	023174	023177	023181	023184	023188	023192	023195	023199	023202	023206	023209	26	2.
34	10.023213	023216	023220	023223	023227	023230	023234	023238	023241	023245	023248	023252	25	3.
35	10.023255	023259	023262	023266	023269	023273	023276	023280	023284	023287	023291	023294	24	4.
36	10.023298	023301	023305	023308	023312	023315	023319	023323	023326	023330	023333	023337	23	1 =
37	10.023340	023344	023347	023351	023354	023358	023362	023365	023369	023372	023376	023379	22	2.
38	10.023383	023386	023390	023393	023397	023401	023404	023408	023411	023415	023418	023422	21	3.
39	10.023425	023429	023433	023436	023440	023443	023447	023450	023454	023457	023461	023465	20	4.
40	10.023468	023472	023475	023479	023482	023486	023489	023493	023497	023500	023504	023507	19	1 =
41	10.023511	023514	023518	023521	023525	023528	023532	023536	023539	023543	023546	023550	18	2.
42	10.023554	023557	023561	023564	023568	023571	023575	023578	023582	023586	023589	023593	17	3.
43	10.023596	023600	023603	023607	023611	023614	023618	023621	023625	023628	023632	023636	16	4.
44	10.023639	023643	023646	023650	023653	023657	023661	023664	023668	023671	023675	023678	15	1 =
45	10.023682	023686	023689	023693	023696	023700	023703	023707	023711	023714	023718	023721	14	2.
46	10.023725	023728	023732	023736	023739	023743	023746	023750	023754	023757	023761	023764	13	3.
47	10.023768	023771	023775	023779	023782	023786	023789	023793	023797	023800	023804	023807	12	4.
48	10.023811	023814	023818	023822	023825	023829	023832	023836	023840	023843	023847	023850	11	1 =
49	10.023854	023857	023861	023865	023868	023872	023875	023879	023883	023886	023890	023893	10	2.
50	10.023897	023901	023904	023908	023911	023915	023918	023922	023926	023929	023933	023936	9	3.
51	10.023940	023944	023947	023951	023954	023958	023962	023965	023969	023972	023976	023980	8	4.
52	10.023983	023987	023990	023994	023998	024001	024005	024008	024012	024016	024019	024023	7	1 =
53	10.024026	024030	024034	024037	024041	024044	024048	024052	024055	024059	024062	024066	6	2.
54	10.024070	024073	024077	024080	024084	024088	024091	024095	024098	024102	024106	024109	5	3.
55	10.024113	024117	024120	024124	024127	024131	024135	024138	024142	024145	024149	024153	4	4.
56	10.024156	024160	024163	024167	024171	024174	024178	024182	024185	024189	024192	024196	3	1 =
57	10.024200	024203	024207	024210	024214	024218	024221	024225	024228	024232	024236	024239	2	2.
58	10.024243	024247	024250	024254	024257	024261	024265	024268	024272	024276	024279	024283	1	3.
59	10.024286	024290	024294	024297	024301	024305	024308	024312	024315	024319	024323	024326	0	4.
Minutes	60	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	
Co-secant of 71 degrees, or Secant of 161 degrees.														

LOGARITHMIC SECANTS.

Secant of 19 degrees, or Co-secant of 109 degrees.													Minutes	Proport. parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
0	10.024330	024334	024337	024341	024344	024348	024352	024355	024359	024363	024366	024370	59	1" = 1
1	10.024373	024377	024381	024384	024388	024392	024395	024399	024402	024406	024410	024413	58	2. 1
2	10.024417	024421	024424	024428	024431	024435	024439	024442	024446	024450	024453	024457	57	3. 2
3	10.024461	024464	024468	024471	024475	024479	024482	024486	024490	024493	024497	024501	56	4. 3
4	10.024504	024508	024511	024515	024519	024522	024526	024530	024533	024537	024541	024544	55	1 = 1
5	10.024548	024552	024555	024559	024562	024566	024570	024573	024577	024581	024584	024588	54	2. 1
6	10.024592	024595	024599	024603	024606	024610	024613	024617	024621	024624	024628	024632	53	3. 2
7	10.024635	024639	024643	024646	024650	024654	024657	024661	024665	024668	024672	024676	52	4. 3
8	10.024679	024683	024687	024690	024694	024697	024701	024705	024708	024712	024716	024719	51	1 = 1
9	10.024723	024727	024730	024734	024738	024741	024745	024749	024752	024756	024760	024763	50	2. 1
10	10.024767	024771	024774	024778	024782	024785	024789	024793	024796	024800	024804	024807	49	3. 2
11	10.024811	024815	024818	024822	024826	024829	024833	024837	024840	024844	024848	024851	48	4. 3
12	10.024855	024859	024863	024866	024870	024873	024877	024881	024884	024888	024892	024895	47	1 = 1
13	10.024899	024903	024906	024910	024914	024917	024921	024925	024928	024932	024936	024939	46	2. 1
14	10.024943	024947	024950	024954	024958	024961	024965	024969	024972	024976	024980	024983	45	3. 2
15	10.024987	024991	024994	024998	025002	025005	025009	025013	025016	025020	025024	025027	44	4. 3
16	10.025031	025035	025039	025042	025046	025050	025053	025057	025061	025064	025068	025072	43	1 = 1
17	10.025075	025079	025083	025086	025090	025094	025097	025101	025105	025108	025112	025116	42	2. 1
18	10.025120	025123	025127	025131	025134	025138	025142	025145	025149	025153	025156	025160	41	3. 2
19	10.025164	025167	025171	025175	025179	025182	025186	025190	025193	025197	025201	025204	40	4. 3
20	10.025208	025212	025215	025219	025223	025227	025230	025234	025238	025241	025245	025249	39	1 = 1
21	10.025252	025256	025260	025264	025267	025271	025275	025278	025282	025286	025289	025293	38	2. 1
22	10.025297	025301	025304	025308	025312	025315	025319	025323	025326	025330	025334	025338	37	3. 2
23	10.025341	025345	025349	025352	025356	025360	025363	025367	025371	025375	025378	025382	36	4. 3
24	10.025386	025389	025393	025397	025401	025404	025408	025412	025415	025419	025423	025427	35	1 = 1
25	10.025430	025434	025438	025441	025445	025449	025453	025456	025460	025464	025467	025471	34	2. 1
26	10.025475	025478	025482	025486	025490	025493	025497	025501	025505	025508	025512	025516	33	3. 2
27	10.025519	025523	025527	025531	025534	025538	025542	025545	025549	025553	025557	025560	32	4. 3
28	10.025564	025568	025571	025575	025579	025583	025586	025590	025594	025598	025601	025605	31	1 = 1
29	10.025609	025612	025616	025620	025624	025627	025631	025635	025638	025642	025646	025650	30	2. 1
30	10.025655	025657	025661	025665	025668	025672	025676	025680	025683	025687	025691	025694	29	3. 2
31	10.025698	025702	025706	025709	025713	025717	025721	025724	025728	025732	025735	025739	28	4. 3
32	10.025743	025747	025750	025754	025758	025762	025766	025769	025773	025777	025780	025784	27	1 = 1
33	10.025788	025792	025795	025799	025803	025806	025810	025814	025818	025821	025825	025829	26	2. 1
34	10.025833	025836	025840	025844	025848	025851	025855	025859	025863	025866	025870	025874	25	3. 2
35	10.025878	025881	025885	025889	025893	025896	025900	025904	025908	025911	025915	025919	24	4. 3
36	10.025923	025926	025930	025934	025938	025941	025945	025949	025953	025956	025960	025964	23	1 = 1
37	10.025968	025971	025975	025979	025983	025986	025990	025994	025998	026001	026005	026009	22	2. 1
38	10.026013	026016	026020	026024	026028	026031	026035	026039	026043	026046	026050	026054	21	3. 2
39	10.026058	026061	026065	026069	026073	026076	026080	026084	026088	026092	026095	026099	20	4. 3
40	10.026103	026107	026110	026114	026118	026122	026125	026129	026133	026137	026140	026144	19	1 = 1
41	10.026148	026152	026156	026159	026163	026167	026171	026174	026178	026182	026186	026189	18	2. 1
42	10.026193	026197	026201	026205	026208	026212	026216	026220	026223	026227	026231	026235	17	3. 2
43	10.026238	026242	026246	026250	026254	026257	026261	026265	026269	026272	026276	026280	16	4. 3
44	10.026284	026288	026291	026295	026299	026303	026306	026310	026314	026318	026322	026325	15	1 = 1
45	10.026329	026333	026337	026340	026344	026348	026352	026356	026359	026363	026367	026371	14	2. 1
46	10.026374	026378	026382	026386	026390	026393	026397	026401	026405	026409	026412	026416	13	3. 2
47	10.026420	026424	026427	026431	026435	026439	026443	026446	026450	026454	026458	026462	12	4. 3
48	10.026465	026469	026473	026477	026481	026484	026488	026492	026496	026499	026503	026507	11	1 = 1
49	10.026511	026515	026518	026522	026526	026530	026534	026537	026541	026545	026549	026553	10	2. 1
50	10.026556	026560	026564	026568	026572	026575	026579	026583	026587	026591	026594	026598	9	3. 2
51	10.026602	026606	026610	026613	026617	026621	026625	026629	026632	026636	026640	026644	8	4. 3
52	10.026648	026651	026655	026659	026663	026667	026670	026674	026678	026682	026686	026689	7	1 = 1
53	10.026693	026697	026701	026705	026709	026712	026716	026720	026724	026728	026731	026735	6	2. 1
54	10.026739	026743	026747	026750	026754	026758	026762	026766	026769	026773	026777	026781	5	3. 2
55	10.026785	026789	026792	026796	026800	026804	026808	026811	026815	026819	026823	026827	4	4. 3
56	10.026831	026834	026838	026842	026846	026850	026853	026857	026861	026865	026869	026873	3	1 = 1
57	10.026876	026880	026884	026888	026892	026895	026899	026903	026907	026911	026915	026918	2	2. 1
58	10.026922	026926	026930	026934	026938	026941	026945	026949	026953	026957	026961	026964	1	3. 2
59	10.026968	026972	026976	026980	026983	026987	026991	026995	026999	027003	027006	027010	0	4. 3
60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°			
Co-secant of 70 degrees, or Secant of 160 degrees.													Minutes	Proport. parts.

LOGARITHMIC SECANTS.

Minutes		Secant of 20 degrees, or Co-secant of 110 degrees.												Minutes	Proport.
		0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
0	10.027014	027018	027022	027026	027029	027033	027037	027041	027045	027049	027053	027056	59	1"	
1	10.027060	027064	027068	027072	027075	027079	027083	027087	027091	027095	027099	027102	58	2.	
2	10.027106	027110	027114	027118	027122	027125	027129	027133	027137	027141	027145	027148	57	3.	
3	10.027152	027156	027160	027164	027168	027171	027175	027179	027183	027187	027191	027195	56	4.	
4	10.027198	027202	027206	027210	027214	027218	027221	027225	027229	027233	027237	027241	55	1 =	
5	10.027245	027248	027252	027256	027260	027264	027268	027272	027275	027279	027283	027287	54	2.	
6	10.027291	027295	027298	027302	027306	027310	027314	027318	027322	027325	027329	027333	53	3.	
7	10.027337	027341	027345	027349	027352	027356	027360	027364	027368	027372	027376	027379	52	4.	
8	10.027383	027387	027391	027395	027399	027403	027406	027410	027414	027418	027422	027426	51	1 =	
9	10.027430	027434	027437	027441	027445	027449	027453	027457	027461	027464	027468	027472	50	2.	
10	10.027476	027480	027484	027488	027491	027495	027499	027503	027507	027511	027515	027519	49	3.	
11	10.027522	027526	027530	027534	027538	027542	027546	027550	027553	027557	027561	027565	48	4.	
12	10.027569	027573	027577	027581	027584	027588	027592	027596	027600	027604	027608	027612	47	1 =	
13	10.027615	027619	027623	027627	027631	027635	027639	027643	027646	027650	027654	027658	46	2.	
14	10.027662	027666	027670	027674	027677	027681	027685	027689	027693	027697	027701	027705	45	3.	
15	10.027709	027712	027716	027720	027724	027728	027732	027736	027740	027743	027747	027751	44	4.	
16	10.027755	027759	027763	027767	027771	027775	027778	027782	027786	027790	027794	027798	43	1 =	
17	10.027802	027806	027810	027814	027817	027821	027825	027829	027833	027837	027841	027845	42	2.	
18	10.027849	027852	027856	027860	027864	027868	027872	027876	027880	027884	027888	027891	41	3.	
19	10.027895	027899	027903	027907	027911	027915	027919	027923	027926	027930	027934	027938	40	4.	
20	10.027942	027946	027950	027954	027958	027962	027966	027969	027973	027977	027981	027985	39	1 =	
21	10.027989	027993	027997	028001	028005	028008	028012	028016	028020	028024	028028	028032	38	2.	
22	10.028036	028040	028044	028048	028051	028055	028059	028063	028067	028071	028075	028079	37	3.	
23	10.028083	028087	028091	028094	028098	028102	028106	028110	028114	028118	028122	028126	36	4.	
24	10.028130	028134	028138	028141	028145	028149	028153	028157	028161	028165	028169	028173	35	1 =	
25	10.028177	028181	028185	028188	028192	028196	028200	028204	028208	028212	028216	028220	34	2.	
26	10.028224	028228	028232	028235	028239	028243	028247	028251	028255	028259	028263	028267	33	3.	
27	10.028271	028275	028279	028283	028287	028290	028294	028298	028302	028306	028310	028314	32	4.	
28	10.028318	028322	028326	028330	028334	028338	028342	028345	028349	028353	028357	028361	31	1 =	
29	10.028365	028369	028373	028377	028381	028385	028389	028393	028397	028401	028404	028408	30	2.	
30	10.028412	028416	028420	028424	028428	028432	028436	028440	028444	028448	028452	028456	29	3.	
31	10.028460	028464	028467	028471	028475	028479	028483	028487	028491	028495	028499	028503	28	4.	
32	10.028507	028511	028515	028519	028523	028527	028531	028534	028538	028542	028546	028550	27	1 =	
33	10.028554	028558	028562	028566	028570	028574	028578	028582	028586	028590	028594	028598	26	2.	
34	10.028602	028606	028609	028613	028617	028621	028625	028629	028633	028637	028641	028645	25	3.	
35	10.028649	028653	028657	028661	028665	028669	028673	028677	028681	028685	028689	028693	24	4.	
36	10.028696	028700	028704	028708	028712	028716	028720	028724	028728	028732	028736	028740	23	1 =	
37	10.028744	028748	028752	028756	028760	028764	028768	028772	028776	028780	028784	028788	22	2.	
38	10.028792	028796	028800	028803	028807	028811	028815	028819	028823	028827	028831	028835	21	3.	
39	10.028839	028843	028847	028851	028855	028859	028863	028867	028871	028875	028879	028883	20	4.	
40	10.028887	028891	028895	028899	028903	028907	028911	028915	028919	028923	028926	028930	19	1 =	
41	10.028934	028938	028942	028946	028950	028954	028958	028962	028966	028970	028974	028978	18	2.	
42	10.028982	028986	028990	028994	028998	029002	029006	029010	029014	029018	029022	029026	17	3.	
43	10.029030	029034	029038	029042	029046	029050	029054	029058	029062	029066	029070	029074	16	4.	
44	10.029078	029082	029086	029090	029094	029098	029102	029106	029110	029114	029118	029122	15	1 =	
45	10.029126	029130	029134	029138	029141	029145	029149	029153	029157	029161	029165	029169	14	2.	
46	10.029173	029177	029181	029185	029189	029193	029197	029201	029205	029209	029213	029217	13	3.	
47	10.029221	029225	029229	029233	029237	029241	029245	029249	029253	029257	029261	029265	12	4.	
48	10.029269	029273	029277	029281	029285	029289	029293	029297	029301	029305	029309	029313	11	1 =	
49	10.029317	029321	029325	029329	029333	029337	029341	029345	029349	029353	029357	029361	10	2.	
50	10.029365	029369	029373	029377	029381	029385	029389	029393	029397	029401	029405	029409	9	3.	
51	10.029413	029417	029421	029425	029429	029433	029437	029441	029445	029449	029453	029457	8	4.	
52	10.029462	029466	029470	029474	029478	029482	029486	029490	029494	029498	029502	029506	7	1 =	
53	10.029510	029514	029518	029522	029526	029530	029534	029538	029542	029546	029550	029554	6	2.	
54	10.029558	029562	029566	029570	029574	029578	029582	029586	029590	029594	029598	029602	5	3.	
55	10.029606	029610	029614	029618	029622	029626	029630	029634	029638	029642	029646	029650	4	4.	
56	10.029655	029659	029663	029667	029671	029675	029679	029683	029687	029691	029695	029699	3	1 =	
57	10.029703	029707	029711	029715	029719	029723	029727	029731	029735	029739	029743	029747	2	2.	
58	10.029751	029755	029759	029763	029767	029771	029775	029779	029783	029787	029791	029795	1	3.	
59	10.029800	029804	029808	029812	029816	029820	029824	029828	029832	029836	029840	029844	0	4.	
		60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport.
Co-secant of 69 degrees, or Secant of 159 degrees.															

LOGARITHMIC SECANTS.

Sectant of 21 degrees, or Co-secant of 111 degrees.												Minutes	Proport. parts.	
"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
98.48	0.29852	0.29856	0.29860	0.29864	0.29868	0.29872	0.29877	0.29881	0.29885	0.29889	0.29893	58	1" = 1	
98.97	0.29901	0.29905	0.29909	0.29913	0.29917	0.29921	0.29925	0.29929	0.29933	0.29937	0.29941	59	2. = 2	
99.45	0.29949	0.29953	0.29957	0.29961	0.29965	0.29970	0.29974	0.29978	0.29982	0.29986	0.29990	57	3. = 3	
99.94	0.29998	0.30002	0.30006	0.30010	0.30014	0.30018	0.30022	0.30026	0.30030	0.30034	0.30038	56	4. = 4	
0.03	0.30047	0.30051	0.30055	0.30059	0.30063	0.30067	0.30071	0.30075	0.30079	0.30083	0.30087	55	1" = 1	
0.09	0.30095	0.30099	0.30103	0.30107	0.30111	0.30115	0.30119	0.30123	0.30127	0.30131	0.30135	54	2. = 2	
0.14	0.30144	0.30148	0.30152	0.30156	0.30160	0.30164	0.30168	0.30172	0.30176	0.30180	0.30184	53	3. = 3	
0.18	0.30193	0.30197	0.30201	0.30205	0.30209	0.30213	0.30217	0.30221	0.30225	0.30229	0.30233	52	4. = 4	
0.23	0.30242	0.30246	0.30250	0.30254	0.30258	0.30262	0.30266	0.30270	0.30274	0.30278	0.30282	51	1" = 1	
0.28	0.30290	0.30295	0.30299	0.30303	0.30307	0.30311	0.30315	0.30319	0.30323	0.30327	0.30331	50	2. = 2	
0.33	0.30339	0.30343	0.30347	0.30352	0.30356	0.30360	0.30364	0.30368	0.30372	0.30376	0.30380	49	5. = 2	
0.38	0.30388	0.30392	0.30396	0.30401	0.30405	0.30409	0.30413	0.30417	0.30421	0.30425	0.30429	48	4. = 3	
0.43	0.30437	0.30441	0.30445	0.30450	0.30454	0.30458	0.30462	0.30466	0.30470	0.30474	0.30478	47	1" = 1	
0.48	0.30487	0.30490	0.30494	0.30499	0.30503	0.30507	0.30511	0.30515	0.30519	0.30523	0.30527	46	2. = 2	
0.53	0.30535	0.30539	0.30544	0.30548	0.30552	0.30556	0.30560	0.30564	0.30568	0.30572	0.30576	45	3. = 2	
0.58	0.30584	0.30589	0.30593	0.30597	0.30601	0.30605	0.30609	0.30613	0.30617	0.30621	0.30625	44	4. = 3	
0.63	0.30634	0.30638	0.30642	0.30646	0.30650	0.30654	0.30658	0.30662	0.30666	0.30670	0.30674	43	1" = 1	
0.67	0.30683	0.30687	0.30691	0.30695	0.30699	0.30703	0.30707	0.30711	0.30715	0.30719	0.30723	42	2. = 2	
0.72	0.30732	0.30736	0.30740	0.30744	0.30748	0.30752	0.30757	0.30761	0.30765	0.30769	0.30773	41	3. = 2	
0.77	0.30781	0.30785	0.30789	0.30794	0.30798	0.30802	0.30806	0.30810	0.30814	0.30818	0.30822	40	4. = 3	
0.82	0.30831	0.30835	0.30839	0.30843	0.30847	0.30851	0.30855	0.30859	0.30863	0.30867	0.30871	39	1" = 1	
0.87	0.30880	0.30884	0.30888	0.30892	0.30896	0.30901	0.30905	0.30909	0.30913	0.30917	0.30921	38	2. = 2	
0.92	0.30929	0.30934	0.30938	0.30942	0.30946	0.30950	0.30954	0.30958	0.30962	0.30966	0.30971	37	3. = 2	
0.97	0.30979	0.30983	0.30987	0.30991	0.30995	0.30999	0.31004	0.31008	0.31012	0.31016	0.31020	36	4. = 3	
1.02	0.31028	0.31032	0.31037	0.31041	0.31045	0.31049	0.31053	0.31057	0.31061	0.31066	0.31070	35	1" = 1	
1.07	0.31078	0.31082	0.31086	0.31090	0.31094	0.31099	0.31103	0.31107	0.31111	0.31115	0.31119	34	2. = 2	
1.12	0.31127	0.31132	0.31136	0.31140	0.31144	0.31148	0.31152	0.31156	0.31161	0.31165	0.31169	33	3. = 2	
1.17	0.31177	0.31181	0.31185	0.31189	0.31194	0.31198	0.31202	0.31206	0.31210	0.31214	0.31218	32	4. = 3	
1.22	0.31227	0.31231	0.31235	0.31239	0.31243	0.31247	0.31252	0.31256	0.31260	0.31264	0.31268	31	1" = 1	
1.27	0.31276	0.31281	0.31285	0.31289	0.31293	0.31297	0.31301	0.31305	0.31310	0.31314	0.31318	30	2. = 2	
1.32	0.31326	0.31330	0.31334	0.31339	0.31343	0.31347	0.31351	0.31355	0.31359	0.31364	0.31368	29	3. = 2	
1.37	0.31376	0.31380	0.31384	0.31388	0.31393	0.31397	0.31401	0.31405	0.31409	0.31413	0.31418	28	4. = 3	
1.42	0.31426	0.31430	0.31434	0.31438	0.31442	0.31447	0.31451	0.31455	0.31459	0.31463	0.31467	27	1" = 1	
1.47	0.31476	0.31480	0.31484	0.31488	0.31492	0.31496	0.31501	0.31505	0.31509	0.31513	0.31517	26	2. = 2	
1.52	0.31526	0.31530	0.31534	0.31538	0.31542	0.31546	0.31551	0.31555	0.31559	0.31563	0.31567	25	3. = 3	
1.57	0.31576	0.31580	0.31584	0.31588	0.31592	0.31596	0.31601	0.31605	0.31609	0.31613	0.31617	24	4. = 3	
1.62	0.31626	0.31630	0.31634	0.31638	0.31642	0.31646	0.31651	0.31655	0.31659	0.31663	0.31667	23	1" = 1	
1.67	0.31676	0.31680	0.31684	0.31688	0.31692	0.31696	0.31701	0.31705	0.31709	0.31713	0.31717	22	2. = 2	
1.72	0.31726	0.31730	0.31734	0.31738	0.31742	0.31747	0.31751	0.31755	0.31759	0.31763	0.31767	21	3. = 3	
1.77	0.31776	0.31780	0.31784	0.31788	0.31793	0.31797	0.31801	0.31805	0.31809	0.31813	0.31818	20	4. = 3	
1.82	0.31826	0.31830	0.31834	0.31839	0.31843	0.31847	0.31851	0.31855	0.31859	0.31864	0.31868	19	1" = 1	
1.87	0.31876	0.31880	0.31885	0.31889	0.31893	0.31897	0.31901	0.31906	0.31910	0.31914	0.31918	18	2. = 2	
1.92	0.31926	0.31931	0.31935	0.31939	0.31943	0.31947	0.31952	0.31956	0.31960	0.31964	0.31968	17	3. = 3	
1.97	0.31977	0.31981	0.31985	0.31989	0.31994	0.31998	0.32002	0.32006	0.32010	0.32015	0.32019	16	4. = 3	
2.02	0.32027	0.32031	0.32035	0.32040	0.32044	0.32048	0.32052	0.32056	0.32061	0.32065	0.32069	15	1" = 1	
2.07	0.32077	0.32082	0.32086	0.32090	0.32094	0.32098	0.32103	0.32107	0.32111	0.32115	0.32119	14	2. = 2	
2.12	0.32128	0.32132	0.32136	0.32141	0.32145	0.32149	0.32153	0.32157	0.32162	0.32166	0.32170	13	3. = 3	
2.17	0.32178	0.32183	0.32187	0.32191	0.32195	0.32199	0.32204	0.32208	0.32212	0.32216	0.32220	12	4. = 3	
2.22	0.32229	0.32233	0.32237	0.32242	0.32246	0.32250	0.32254	0.32258	0.32263	0.32267	0.32271	11	1" = 1	
2.27	0.32279	0.32283	0.32288	0.32292	0.32296	0.32301	0.32305	0.32309	0.32313	0.32317	0.32322	10	2. = 2	
2.32	0.32330	0.32334	0.32338	0.32343	0.32347	0.32351	0.32355	0.32360	0.32364	0.32368	0.32372	9	3. = 3	
2.37	0.32381	0.32385	0.32389	0.32393	0.32398	0.32402	0.32406	0.32410	0.32414	0.32419	0.32423	8	4. = 3	
2.42	0.32431	0.32436	0.32440	0.32444	0.32448	0.32452	0.32457	0.32461	0.32465	0.32469	0.32474	7	1" = 1	
2.47	0.32482	0.32486	0.32491	0.32495	0.32499	0.32503	0.32507	0.32512	0.32516	0.32520	0.32524	6	2. = 2	
2.52	0.32533	0.32537	0.32541	0.32546	0.32550	0.32554	0.32558	0.32562	0.32567	0.32571	0.32575	5	3. = 3	
2.57	0.32584	0.32588	0.32592	0.32596	0.32601	0.32605	0.32609	0.32613	0.32618	0.32622	0.32626	4	4. = 3	
3.02	0.32635	0.32639	0.32643	0.32647	0.32651	0.32656	0.32660	0.32664	0.32668	0.32673	0.32677	3	1" = 1	
3.07	0.32688	0.32692	0.32696	0.32698	0.32702	0.32707	0.32711	0.32715	0.32719	0.32724	0.32728	2	2. = 2	
3.12	0.32736	0.32741	0.32745	0.32749	0.32753	0.32758	0.32762	0.32766	0.32770	0.32775	0.32779	1	3. = 3	
3.17	0.32787	0.32792	0.32796	0.32800	0.32804	0.32809	0.32813	0.32817	0.32821	0.32826	0.32830	0	4. = 3	
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"			Minutes	Proport. parts.
Co-secant of 68 degrees, or Secant of 158 degrees.												Minutes	Proport. parts.	

LOGARITHMIC SECANTS.

Secant of 22 degrees, or Co-secant of 112 degrees.															
Minutes	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	Minutes	Proport.	
0	10.032834	032838	032843	032847	032851	032855	032860	032864	032868	032872	032877	032881	59	1° =	
1	10.032885	032889	032894	032898	032902	032906	032911	032915	032919	032923	032928	032932	58	2.	
2	10.032936	032941	032945	032949	032953	032958	032962	032966	032970	032975	032979	032983	57	3.	
3	10.032987	032992	032996	033000	033004	033009	033013	033017	033022	033026	033030	033034	56	4.	
4	10.033039	033043	033047	033051	033055	033060	033064	033068	033073	033077	033081	033086	55	1 =	
5	10.033090	033094	033098	033103	033107	033111	033115	033120	033124	033128	033133	033137	54	2.	
6	10.033141	033145	033150	033154	033158	033162	033167	033171	033175	033180	033184	033188	53	3.	
7	10.033192	033197	033201	033205	033210	033214	033218	033222	033227	033231	033235	033240	52	4.	
8	10.033244	033248	033252	033257	033261	033265	033269	033274	033278	033282	033287	033291	51	1 =	
9	10.033295	033299	033304	033308	033312	033317	033321	033325	033329	033334	033338	033342	50	2.	
10	10.033347	033351	033355	033360	033364	033368	033372	033377	033381	033385	033390	033394	49	3.	
11	10.033398	033402	033407	033411	033415	033420	033424	033428	033432	033437	033441	033445	48	4.	
12	10.033450	033454	033458	033463	033467	033471	033475	033480	033484	033488	033493	033497	47	1 =	
13	10.033501	033506	033510	033514	033518	033523	033527	033531	033536	033540	033544	033549	46	2.	
14	10.033553	033557	033561	033566	033570	033574	033579	033583	033587	033592	033596	033600	45	3.	
15	10.033605	033609	033613	033617	033622	033626	033630	033635	033639	033643	033648	033652	44	4.	
16	10.033656	033661	033665	033669	033673	033678	033682	033686	033691	033695	033699	033704	43	1 =	
17	10.033708	033712	033717	033721	033725	033730	033734	033738	033742	033747	033751	033755	42	2.	
18	10.033760	033764	033768	033773	033777	033781	033786	033790	033794	033799	033803	033807	41	3.	
19	10.033812	033816	033820	033825	033829	033833	033838	033842	033846	033851	033855	033859	40	4.	
20	10.033863	033868	033872	033876	033881	033885	033889	033894	033898	033902	033907	033911	39	1 =	
21	10.033915	033919	033924	033928	033933	033937	033941	033946	033950	033954	033959	033963	38	2.	
22	10.033967	033972	033976	033980	033985	033989	033993	033998	034002	034006	034011	034015	37	3.	
23	10.034019	034024	034028	034032	034037	034041	034045	034050	034054	034058	034063	034067	36	4.	
24	10.034071	034076	034080	034084	034089	034093	034097	034102	034106	034110	034115	034119	35	1 =	
25	10.034124	034128	034132	034137	034141	034145	034150	034154	034158	034163	034167	034171	34	2.	
26	10.034176	034180	034184	034189	034193	034197	034202	034206	034210	034215	034219	034223	33	3.	
27	10.034228	034232	034237	034241	034245	034250	034254	034258	034263	034267	034271	034276	32	4.	
28	10.034280	034284	034289	034293	034297	034302	034306	034311	034315	034319	034324	034328	31	1 =	
29	10.034332	034337	034341	034345	034350	034354	034358	034363	034367	034372	034376	034380	30	2.	
30	10.034385	034389	034393	034398	034402	034406	034411	034415	034419	034424	034428	034433	29	3.	
31	10.034437	034441	034446	034450	034454	034459	034463	034468	034472	034477	034481	034485	28	4.	
32	10.034489	034494	034498	034502	034507	034511	034516	034520	034524	034529	034533	034537	27	1 =	
33	10.034542	034546	034551	034555	034559	034564	034568	034572	034577	034581	034586	034590	26	2.	
34	10.034594	034599	034603	034607	034612	034616	034621	034625	034629	034634	034638	034642	25	3.	
35	10.034647	034651	034656	034660	034664	034669	034673	034677	034682	034686	034691	034695	24	4.	
36	10.034699	034704	034708	034712	034717	034721	034726	034730	034734	034739	034743	034748	23	1 =	
37	10.034752	034756	034761	034765	034770	034774	034778	034783	034787	034791	034796	034800	22	2.	
38	10.034805	034809	034813	034818	034822	034827	034831	034835	034840	034844	034849	034853	21	3.	
39	10.034857	034862	034866	034870	034875	034879	034884	034888	034892	034897	034901	034906	20	4.	
40	10.034910	034914	034919	034923	034928	034932	034936	034941	034945	034950	034954	034958	19	1 =	
41	10.034963	034967	034972	034976	034980	034985	034989	034994	034998	035002	035007	035011	18	2.	
42	10.035016	035020	035024	035029	035033	035038	035042	035046	035051	035055	035060	035064	17	3.	
43	10.035069	035073	035077	035082	035086	035091	035095	035099	035104	035108	035113	035117	16	4.	
44	10.035121	035126	035130	035135	035139	035143	035148	035152	035157	035161	035166	035170	15	1 =	
45	10.035174	035179	035183	035188	035192	035196	035201	035205	035210	035214	035219	035223	14	2.	
46	10.035227	035232	035236	035241	035245	035249	035254	035258	035263	035267	035272	035276	13	3.	
47	10.035280	035285	035289	035294	035298	035303	035307	035311	035316	035320	035325	035329	12	4.	
48	10.035333	035338	035342	035347	035351	035356	035360	035364	035369	035373	035378	035382	11	1 =	
49	10.035387	035391	035395	035400	035404	035409	035413	035418	035422	035426	035431	035435	10	2.	
50	10.035440	035444	035449	035453	035458	035462	035466	035471	035475	035480	035484	035489	9	3.	
51	10.035493	035497	035502	035506	035511	035515	035520	035524	035529	035533	035537	035542	8	4.	
52	10.035546	035551	035555	035560	035564	035568	035573	035577	035582	035586	035591	035595	7	1 =	
53	10.035600	035604	035608	035613	035617	035622	035626	035631	035635	035640	035644	035648	6	2.	
54	10.035653	035657	035662	035666	035671	035675	035680	035684	035688	035693	035697	035702	5	3.	
55	10.035706	035711	035715	035720	035724	035729	035733	035737	035742	035746	035751	035755	4	4.	
56	10.035760	035764	035769	035773	035778	035782	035786	035791	035795	035800	035804	035809	3	1 =	
57	10.035813	035818	035822	035827	035831	035835	035840	035844	035849	035853	035858	035862	2	2.	
58	10.035867	035871	035876	035880	035885	035889	035893	035898	035902	035907	035911	035916	1	3.	
59	10.035920	035925	035929	035934	035938	035943	035947	035952	035956	035960	035965	035969	0	4.	
	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport.	
Co-secant of 67 degrees, or Secant of 157 degrees.															

LOGARITHMIC SECANTS.

Secant of 23 degrees, or Co-secant of 113 degrees.											Minutes	Proport. parts
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
974	035978	035988	035998	035992	035996	036001	036005	036010	036014	036019	59	1" = 1
028	036032	036036	036041	036045	036050	036054	036059	036063	036068	036072	58	2. 2
081	036086	036090	036095	036099	036104	036108	036113	036117	036121	036126	57	3. 3
135	036139	036144	036148	036153	036157	036162	036166	036171	036175	036180	56	4. 4
189	036193	036198	036202	036207	036211	036216	036220	036225	036229	036234	55	1" = 1
243	036247	036252	036256	036260	036265	036269	036274	036278	036283	036287	54	2. 2
296	036301	036305	036310	036314	036319	036323	036328	036332	036337	036341	53	3. 3
350	036355	036359	036364	036368	036373	036377	036382	036386	036391	036395	52	4. 4
404	036409	036413	036418	036422	036427	036431	036436	036440	036445	036449	51	1" = 1
458	036463	036467	036472	036476	036481	036485	036490	036494	036499	036503	50	2. 2
512	036517	036521	036526	036530	036535	036539	036544	036548	036553	036557	49	3. 3
566	036571	036575	036580	036584	036589	036593	036598	036602	036607	036611	48	4. 4
620	036625	036630	036634	036639	036643	036648	036652	036657	036661	036666	47	1" = 1
675	036679	036684	036688	036693	036697	036702	036706	036711	036715	036720	46	2. 2
729	036733	036738	036742	036747	036751	036756	036761	036765	036770	036774	45	3. 3
783	036788	036792	036797	036801	036806	036810	036815	036819	036824	036828	44	4. 4
837	036842	036846	036851	036856	036860	036865	036869	036874	036878	036883	43	1" = 1
892	036896	036901	036905	036910	036914	036919	036923	036928	036933	036937	42	2. 2
946	036951	036955	036960	036964	036969	036973	036978	036982	036987	036991	41	3. 3
001	037005	037010	037014	037019	037023	037028	037032	037037	037041	037046	40	4. 4
055	037060	037064	037069	037073	037078	037082	037087	037091	037096	037100	39	1" = 1
110	037114	037119	037123	037128	037132	037137	037141	037146	037150	037155	38	2. 2
164	037169	037173	037178	037182	037187	037191	037196	037201	037205	037210	37	3. 3
219	037223	037228	037232	037237	037241	037246	037251	037255	037260	037264	36	4. 4
273	037278	037282	037287	037292	037296	037301	037305	037310	037314	037319	35	1" = 1
328	037333	037337	037342	037346	037351	037355	037360	037365	037369	037374	34	2. 2
383	037387	037392	037396	037401	037406	037410	037415	037419	037424	037428	33	3. 3
438	037442	037447	037451	037456	037460	037465	037470	037474	037479	037483	32	4. 4
492	037497	037502	037506	037511	037515	037520	037524	037529	037534	037538	31	1" = 1
547	037552	037556	037561	037566	037570	037575	037579	037584	037588	037593	30	2. 2
602	037607	037611	037616	037620	037625	037630	037634	037639	037643	037648	29	3. 3
657	037662	037666	037671	037675	037680	037685	037689	037694	037698	037703	28	4. 4
712	037717	037721	037726	037730	037735	037740	037744	037749	037753	037758	27	1" = 1
767	037772	037776	037781	037786	037790	037795	037799	037804	037808	037813	26	2. 2
822	037827	037831	037836	037841	037845	037850	037854	037859	037864	037868	25	3. 3
877	037882	037887	037891	037896	037900	037905	037910	037914	037919	037923	24	4. 4
933	037937	037942	037946	037951	037956	037960	037965	037969	037974	037979	23	1" = 1
988	037993	037997	038002	038006	038011	038015	038020	038025	038029	038034	22	2. 2
043	038048	038052	038057	038061	038066	038071	038075	038080	038084	038089	21	3. 3
098	038103	038108	038112	038117	038121	038126	038131	038135	038140	038144	20	4. 4
154	038158	038163	038167	038172	038177	038181	038186	038191	038195	038200	19	1" = 1
209	038214	038218	038223	038228	038232	038237	038241	038246	038251	038255	18	2. 2
264	038269	038274	038278	038283	038288	038292	038297	038301	038306	038311	17	3. 3
320	038325	038329	038334	038338	038343	038348	038352	038357	038362	038366	16	4. 4
375	038380	038385	038389	038394	038399	038403	038408	038413	038417	038422	15	1" = 1
431	038436	038440	038445	038450	038454	038459	038463	038468	038473	038477	14	2. 2
487	038491	038496	038501	038505	038510	038514	038519	038524	038528	038533	13	3. 3
542	038547	038552	038556	038561	038566	038570	038575	038579	038584	038589	12	4. 4
598	038603	038607	038612	038617	038621	038626	038631	038635	038640	038644	11	1" = 1
654	038658	038663	038668	038672	038677	038682	038686	038691	038696	038700	10	2. 2
710	038714	038719	038723	038728	038733	038737	038742	038747	038751	038756	9	3. 3
765	038770	038775	038779	038784	038789	038793	038798	038803	038807	038812	8	4. 4
821	038826	038831	038835	038840	038845	038849	038854	038858	038863	038868	7	1" = 1
877	038882	038886	038891	038896	038900	038905	038910	038914	038919	038924	6	2. 2
933	038938	038942	038947	038952	038956	038961	038966	038970	038975	038980	5	3. 3
989	038994	038999	039003	039008	039012	039017	039022	039026	039031	039036	4	4. 4
045	039050	039055	039059	039064	039069	039073	039078	039083	039087	039092	3	1" = 1
101	039106	039111	039115	039120	039125	039129	039134	039139	039143	039148	2	2. 2
157	039162	039167	039171	039176	039181	039185	039190	039195	039200	039204	1	3. 3
214	039218	039223	039228	039232	039237	039242	039246	039251	039256	039260	0	4. 4
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-secant of 66 degrees, or Secant of 156 degrees.												

LOGARITHMIC SECANTS.

Secant of 24 degrees, or Co-secant of 114 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proport.
0	10.039270	039274	039279	039284	039289	039293	039298	039303	039307	039312	039317	039321	59	1"
1	10.039326	039331	039335	039340	039345	039350	039354	039359	039364	039368	039373	039378	58	2.
2	10.039382	039387	039392	039396	039401	039406	039411	039415	039420	039425	039429	039434	57	3.
3	10.039439	039443	039448	039453	039458	039462	039467	039472	039476	039481	039486	039490	56	4.
4	10.039495	039500	039505	039509	039514	039519	039523	039528	039533	039537	039542	039547	55	1 =
5	10.039552	039556	039561	039566	039570	039575	039580	039585	039589	039594	039599	039603	54	2.
6	10.039608	039613	039617	039622	039627	039632	039636	039641	039646	039650	039655	039660	53	3.
7	10.039665	039669	039674	039679	039683	039688	039693	039698	039702	039707	039712	039716	52	4.
8	10.039721	039726	039731	039735	039740	039745	039749	039754	039759	039764	039768	039773	51	1 =
9	10.039778	039783	039787	039792	039797	039801	039806	039811	039816	039820	039825	039830	50	2.
10	10.039834	039839	039844	039849	039853	039858	039863	039868	039872	039877	039882	039886	49	3.
11	10.039891	039896	039901	039905	039910	039915	039920	039924	039929	039934	039938	039943	48	4.
12	10.039948	039953	039957	039962	039967	039972	039976	039981	039986	039991	039995	040000	47	1 =
13	10.040005	040009	040014	040019	040024	040028	040033	040038	040043	040047	040052	040057	46	2.
14	10.040062	040066	040071	040076	040081	040085	040090	040095	040099	040104	040109	040114	45	3.
15	10.040118	040123	040128	040133	040137	040142	040147	040152	040156	040161	040166	040171	44	4.
16	10.040175	040180	040185	040190	040194	040199	040204	040209	040213	040218	040223	040228	43	1 =
17	10.040233	040237	040242	040247	040251	040256	040261	040266	040270	040275	040280	040285	42	2.
18	10.040289	040294	040299	040304	040308	040313	040318	040323	040327	040332	040337	040342	41	3.
19	10.040346	040351	040356	040361	040365	040370	040375	040380	040384	040389	040394	040399	40	4.
20	10.040404	040408	040413	040418	040423	040427	040432	040437	040442	040446	040451	040456	39	1 =
21	10.040461	040465	040470	040475	040480	040485	040489	040494	040499	040504	040508	040513	38	2.
22	10.040518	040523	040527	040532	040537	040542	040546	040551	040556	040561	040566	040570	37	3.
23	10.040575	040580	040585	040589	040594	040599	040604	040609	040613	040618	040623	040628	36	4.
24	10.040632	040637	040642	040647	040652	040656	040661	040666	040671	040675	040680	040685	35	1 =
25	10.040690	040695	040699	040704	040709	040714	040718	040723	040728	040733	040738	040743	34	2.
26	10.040747	040752	040757	040761	040766	040771	040776	040781	040785	040790	040795	040800	33	3.
27	10.040805	040809	040814	040819	040824	040828	040833	040838	040843	040848	040852	040857	32	4.
28	10.040862	040867	040872	040876	040881	040886	040891	040896	040900	040905	040910	040915	31	1 =
29	10.040919	040924	040929	040934	040939	040943	040948	040953	040958	040963	040967	040972	30	2.
30	10.040977	040982	040987	040991	040996	041001	041006	041011	041015	041020	041025	041030	29	3.
31	10.041035	041039	041044	041049	041054	041059	041063	041068	041073	041078	041083	041087	28	4.
32	10.041092	041097	041102	041107	041111	041116	041121	041126	041131	041136	041140	041145	27	1 =
33	10.041150	041155	041160	041164	041169	041174	041179	041184	041188	041193	041198	041203	26	2.
34	10.041208	041212	041217	041222	041227	041232	041237	041241	041246	041251	041256	041261	25	3.
35	10.041265	041270	041275	041280	041285	041290	041294	041299	041304	041309	041314	041318	24	4.
36	10.041323	041328	041333	041338	041343	041347	041352	041357	041362	041367	041371	041376	23	1 =
37	10.041381	041386	041391	041396	041400	041405	041410	041415	041420	041425	041429	041434	22	2.
38	10.041439	041444	041449	041454	041458	041463	041468	041473	041478	041483	041487	041492	21	3.
39	10.041497	041502	041507	041511	041516	041521	041526	041531	041536	041540	041545	041550	20	4.
40	10.041555	041560	041565	041569	041574	041579	041584	041589	041594	041599	041603	041608	19	1 =
41	10.041613	041618	041623	041628	041632	041637	041642	041647	041652	041657	041661	041666	18	2.
42	10.041671	041676	041681	041686	041690	041695	041700	041705	041710	041715	041720	041724	17	3.
43	10.041729	041734	041739	041744	041749	041753	041758	041763	041768	041773	041778	041783	16	4.
44	10.041787	041792	041797	041802	041807	041812	041817	041821	041826	041831	041836	041841	15	1 =
45	10.041846	041850	041855	041860	041865	041870	041875	041880	041884	041889	041894	041899	14	2.
46	10.041904	041909	041914	041918	041923	041928	041933	041938	041943	041948	041952	041957	13	3.
47	10.041962	041967	041972	041977	041982	041987	041991	041996	042001	042006	042011	042016	12	4.
48	10.042021	042025	042030	042035	042040	042045	042050	042055	042059	042064	042069	042074	11	1 =
49	10.042079	042084	042089	042094	042098	042103	042108	042113	042118	042123	042128	042133	10	2.
50	10.042137	042142	042147	042152	042157	042162	042167	042171	042176	042181	042186	042191	9	3.
51	10.042196	042201	042206	042210	042215	042220	042225	042230	042235	042240	042245	042250	8	4.
52	10.042254	042259	042264	042269	042274	042279	042284	042289	042293	042298	042303	042308	7	1 =
53	10.042313	042318	042323	042328	042333	042337	042342	042347	042352	042357	042362	042367	6	2.
54	10.042372	042376	042381	042386	042391	042396	042401	042406	042411	042416	042420	042425	5	3.
55	10.042430	042435	042440	042445	042450	042455	042460	042464	042469	042474	042479	042484	4	4.
56	10.042489	042494	042499	042504	042509	042513	042518	042523	042528	042533	042538	042543	3	1 =
57	10.042548	042553	042558	042562	042567	042572	042577	042582	042587	042592	042597	042602	2	2.
58	10.042607	042611	042616	042621	042626	042631	042636	042641	042646	042651	042656	042660	1	3.
59	10.042665	042670	042675	042680	042685	042690	042695	042700	042705	042710	042714	042719	0	4.
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	
Co-secant of 65 degrees, or Secant of 155 degrees.														

LOGARITHMIC SECANTS.

Secant of 25 degrees, or Co-secant of 115 degrees.												Minutes	Proport. parts	
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°				
24	042729	042734	042739	042744	042749	042754	042759	042764	042768	042773	042778	58	1" = 1	
23	042788	042793	042798	042803	042808	042813	042818	042822	042827	042832	042837	59	2. 2	
22	042847	042852	042857	042862	042867	042872	042877	042881	042886	042891	042896	57	3. 3	
21	042906	042911	042916	042921	042926	042931	042936	042941	042945	042950	042955	56	4. 4	
20	042965	042970	042975	042980	042985	042990	042995	043000	043005	043009	043014	55	1" = 1	
19	043024	043029	043034	043039	043044	043049	043054	043059	043064	043069	043074	54	2. 2	
18	043083	043088	043093	043098	043103	043108	043113	043118	043123	043128	043133	53	3. 3	
17	043143	043148	043153	043157	043162	043167	043172	043177	043182	043187	043192	52	4. 4	
16	043202	043207	043212	043217	043222	043227	043232	043236	043241	043246	043251	51	1" = 1	
15	043261	043266	043271	043276	043281	043286	043291	043296	043301	043306	043311	50	2. 2	
14	043321	043325	043330	043335	043340	043345	043350	043355	043360	043365	043370	49	3. 3	
13	043380	043385	043390	043395	043400	043405	043410	043415	043420	043424	043429	48	4. 4	
12	043439	043444	043449	043454	043459	043464	043469	043474	043479	043484	043489	47	1" = 1	
11	043499	043504	043509	043514	043519	043524	043529	043534	043538	043543	043548	46	2. 2	
10	043558	043563	043568	043573	043578	043583	043588	043593	043598	043603	043608	45	3. 3	
9	043618	043623	043628	043633	043638	043643	043648	043653	043658	043663	043668	44	4. 4	
8	043677	043682	043687	043692	043697	043702	043707	043712	043717	043722	043727	43	1" = 1	
7	043737	043742	043747	043752	043757	043762	043767	043772	043777	043782	043787	42	2. 2	
6	043797	043802	043807	043812	043817	043822	043827	043832	043837	043842	043847	41	3. 3	
5	043857	043862	043867	043872	043877	043881	043886	043891	043896	043901	043906	40	4. 4	
4	043916	043921	043926	043931	043936	043941	043946	043951	043956	043961	043966	39	1" = 1	
3	043976	043981	043986	043991	043996	044001	044006	044011	044016	044021	044026	38	2. 2	
2	044036	044041	044046	044051	044056	044061	044066	044071	044076	044081	044086	37	3. 3	
1	044096	044101	044106	044111	044116	044121	044126	044131	044136	044141	044146	36	4. 4	
0	044156	044161	044166	044171	044176	044181	044186	044191	044196	044201	044206	35	1" = 1	
59	044216	044221	044226	044231	044236	044241	044246	044251	044256	044261	044266	34	2. 2	
58	044276	044281	044286	044291	044296	044301	044306	044311	044316	044321	044326	33	3. 3	
57	044336	044341	044346	044351	044356	044361	044366	044371	044376	044381	044386	32	4. 4	
56	044396	044401	044406	044411	044416	044421	044426	044431	044436	044441	044446	31	1" = 1	
55	044456	044461	044466	044471	044476	044481	044486	044491	044496	044501	044506	30	2. 2	
54	044516	044521	044526	044531	044536	044541	044546	044551	044556	044561	044566	29	3. 3	
53	044576	044581	044586	044591	044596	044601	044606	044611	044616	044621	044626	28	4. 4	
52	044637	044642	044647	044652	044657	044662	044667	044672	044677	044682	044687	27	1" = 1	
51	044698	044703	044708	044713	044718	044723	044728	044733	044738	044743	044748	26	2. 2	
50	044758	044763	044768	044773	044778	044783	044788	044793	044798	044803	044808	25	3. 3	
49	044819	044824	044829	044834	044839	044844	044849	044854	044859	044864	044869	24	4. 4	
48	044879	044884	044889	044894	044899	044904	044909	044914	044919	044925	044930	23	1" = 1	
47	044940	044945	044950	044955	044960	044965	044970	044975	044980	044985	044990	22	2. 2	
46	045000	045005	045010	045015	045020	045025	045031	045036	045041	045046	045051	21	3. 3	
45	045061	045066	045071	045076	045081	045086	045091	045096	045101	045106	045111	20	4. 4	
44	045122	045127	045132	045137	045142	045147	045152	045157	045162	045167	045172	19	1" = 1	
43	045182	045187	045192	045197	045203	045208	045213	045218	045223	045228	045233	18	2. 2	
42	045243	045248	045253	045258	045263	045268	045274	045279	045284	045289	045294	17	3. 3	
41	045304	045309	045314	045319	045324	045329	045334	045339	045345	045350	045355	16	4. 4	
40	045365	045370	045375	045380	045385	045390	045395	045400	045405	045410	045416	15	1" = 1	
39	045426	045431	045436	045441	045446	045451	045456	045461	045466	045471	045477	14	2. 2	
38	045487	045492	045497	045502	045507	045512	045517	045522	045527	045532	045538	13	3. 3	
37	045548	045553	045558	045563	045568	045573	045578	045583	045588	045593	045599	12	4. 4	
36	045609	045614	045619	045624	045629	045634	045639	045644	045649	045655	045660	11	1" = 1	
35	045670	045675	045680	045685	045690	045695	045700	045705	045711	045716	045721	10	2. 2	
34	045731	045736	045741	045746	045751	045756	045762	045767	045772	045777	045782	9	3. 3	
33	045792	045797	045802	045807	045812	045818	045823	045828	045833	045838	045843	8	4. 4	
32	045853	045859	045864	045869	045874	045879	045884	045889	045894	045899	045904	7	1" = 1	
31	045915	045920	045925	045930	045935	045940	045945	045950	045956	045961	045966	6	2. 2	
30	045976	045981	045986	045991	045996	046002	046007	046012	046017	046022	046027	5	3. 3	
29	046037	046042	046048	046053	046058	046063	046068	046073	046078	046083	046089	4	4. 4	
28	046099	046104	046109	046114	046119	046124	046130	046135	046140	046145	046150	3	1" = 1	
27	046160	046165	046170	046176	046181	046186	046191	046196	046201	046206	046211	2	2. 2	
26	046222	046227	046232	046237	046242	046247	046253	046258	046263	046268	046273	1	3. 3	
25	046283	046288	046294	046299	046304	046309	046314	046319	046324	046329	046335	0	4. 4	
55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5°												Minutes	Proport. parts	
Co-secant of 64 degrees, or Secant of 154 degrees.														

LOGARITHMIC SECANTS.

Secant of 26 degrees, or Co-secant of 116 degrees.															Minutes	Prop.
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		Minutes	Prop.	
0	10.046340	046345	046350	046355	046360	046365	046371	046376	046381	046386	046391	046396	59	1"		
1	10.046401	046407	046412	046417	046422	046427	046432	046437	046443	046448	046453	046458	58	2.		
2	10.046463	046468	046473	046479	046484	046489	046494	046499	046504	046509	046515	046520	57	3.		
3	10.046525	046530	046535	046540	046545	046551	046556	046561	046566	046571	046576	046581	56	4.		
4	10.046587	046592	046597	046602	046607	046612	046617	046623	046628	046633	046638	046643	55	1 =		
5	10.046648	046654	046659	046664	046669	046674	046679	046684	046690	046695	046700	046705	54	2.		
6	10.046710	046715	046721	046726	046731	046736	046741	046746	046752	046757	046762	046767	53	3.		
7	10.046772	046777	046783	046788	046793	046798	046803	046808	046813	046819	046824	046829	52	4.		
8	10.046834	046839	046844	046850	046855	046860	046865	046870	046875	046881	046886	046891	51	1 =		
9	10.046896	046901	046906	046912	046917	046922	046927	046932	046938	046943	046948	046953	50	2.		
10	10.046958	046963	046969	046974	046979	046984	046989	046994	047000	047005	047010	047015	49	3.		
11	10.047020	047025	047031	047036	047041	047046	047051	047057	047062	047067	047072	047077	48	4.		
12	10.047082	047088	047093	047098	047103	047108	047114	047119	047124	047129	047134	047139	47	1 =		
13	10.047145	047150	047155	047160	047165	047171	047176	047181	047186	047191	047196	047202	46	2.		
14	10.047207	047212	047217	047222	047228	047233	047238	047243	047248	047253	047258	047263	45	3.		
15	10.047269	047274	047280	047285	047290	047295	047300	047305	047311	047316	047321	047326	44	4.		
16	10.047331	047337	047342	047347	047352	047357	047363	047368	047373	047378	047383	047389	43	1 =		
17	10.047394	047399	047404	047409	047415	047420	047425	047430	047435	047441	047446	047451	42	2.		
18	10.047456	047461	047467	047472	047477	047482	047487	047493	047498	047503	047508	047513	41	3.		
19	10.047519	047524	047529	047534	047540	047545	047550	047555	047560	047566	047571	047576	40	4.		
20	10.047581	047586	047592	047597	047602	047607	047612	047618	047623	047628	047633	047639	39	1 =		
21	10.047644	047649	047654	047659	047665	047670	047675	047680	047685	047691	047696	047701	38	2.		
22	10.047706	047712	047717	047722	047727	047732	047738	047743	047748	047753	047759	047764	37	3.		
23	10.047769	047774	047779	047785	047790	047795	047800	047806	047811	047816	047821	047826	36	4.		
24	10.047832	047837	047842	047847	047853	047858	047863	047868	047873	047879	047884	047889	35	1 =		
25	10.047894	047900	047905	047910	047915	047921	047926	047931	047936	047941	047947	047952	34	2.		
26	10.047957	047962	047968	047973	047978	047983	047989	047994	047999	048004	048010	048015	33	3.		
27	10.048020	048025	048030	048036	048041	048046	048051	048057	048062	048067	048072	048078	32	4.		
28	10.048083	048088	048093	048099	048104	048109	048114	048120	048125	048130	048135	048141	31	1 =		
29	10.048146	048151	048156	048162	048167	048172	048177	048183	048188	048193	048198	048204	30	2.		
30	10.048209	048214	048219	048225	048230	048235	048240	048246	048251	048256	048261	048267	29	3.		
31	10.048272	048277	048282	048288	048293	048298	048303	048309	048314	048319	048324	048330	28	4.		
32	10.048335	048340	048345	048351	048356	048361	048366	048372	048377	048382	048387	048393	27	1 =		
33	10.048398	048403	048408	048414	048419	048424	048430	048435	048440	048445	048451	048456	26	2.		
34	10.048461	048466	048472	048477	048482	048487	048493	048498	048503	048508	048514	048519	25	3.		
35	10.048524	048530	048535	048540	048545	048551	048556	048561	048566	048572	048577	048582	24	4.		
36	10.048588	048593	048598	048603	048609	048614	048619	048624	048630	048635	048640	048646	23	1 =		
37	10.048651	048656	048661	048667	048672	048677	048682	048688	048693	048698	048704	048709	22	2.		
38	10.048714	048719	048725	048730	048735	048741	048746	048751	048756	048762	048767	048772	21	3.		
39	10.048778	048783	048788	048793	048799	048804	048809	048814	048820	048825	048830	048836	20	4.		
40	10.048841	048846	048852	048857	048862	048867	048873	048878	048883	048889	048894	048899	19	1 =		
41	10.048904	048910	048915	048920	048926	048931	048936	048941	048947	048952	048957	048963	18	2.		
42	10.048968	048973	048979	048984	048989	048994	049000	049005	049010	049016	049021	049026	17	3.		
43	10.049031	049037	049042	049047	049053	049058	049063	049069	049074	049079	049084	049090	16	4.		
44	10.049095	049100	049106	049111	049116	049122	049127	049132	049138	049143	049148	049153	15	1 =		
45	10.049159	049164	049169	049175	049180	049185	049191	049196	049201	049207	049212	049217	14	2.		
46	10.049222	049228	049233	049238	049244	049249	049254	049260	049265	049270	049276	049281	13	3.		
47	10.049286	049291	049297	049302	049307	049313	049318	049323	049329	049334	049339	049345	12	4.		
48	10.049350	049355	049361	049366	049371	049377	049382	049387	049393	049398	049403	049408	11	1 =		
49	10.049414	049419	049424	049430	049435	049440	049446	049451	049456	049462	049467	049472	10	2.		
50	10.049478	049483	049488	049494	049499	049504	049510	049515	049520	049526	049531	049536	9	3.		
51	10.049542	049547	049552	049558	049563	049568	049574	049579	049584	049590	049595	049600	8	4.		
52	10.049606	049611	049616	049622	049627	049632	049638	049643	049648	049654	049659	049664	7	1 =		
53	10.049670	049675	049680	049686	049691	049696	049702	049707	049712	049718	049723	049728	6	2.		
54	10.049734	049739	049744	049750	049755	049760	049766	049771	049776	049782	049787	049792	5	3.		
55	10.049798	049803	049808	049814	049819	049825	049830	049835	049841	049846	049851	049857	4	4.		
56	10.049862	049867	049873	049878	049883	049889	049894	049899	049905	049910	049915	049921	3	1 =		
57	10.049926	049932	049937	049942	049948	049953	049958	049964	049969	049974	049980	049985	2	2.		
58	10.049990	049996	050001	050006	050012	050017	050023	050028	050033	050039	050044	050049	1	3.		
59	10.050055	050060	050065	050071	050076	050082	050087	050092	050098	050103	050108	050114	0	4.		
60" 55" 50" 45" 40" 35" 30" 25" 20" 15" 10" 5"															Minutes	Prop.
Co-secant of 63 degrees, or Secant of 153 degrees.																

TABLE XXXV.

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LOGARITHMIC SECANTS.

Secant of 27 degrees, or Co-secant of 117 degrees.													Minutes	Proport. parts.
1'	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
50119	050124	050130	050135	050141	050146	050151	050157	050162	050167	050173	050178	59	1" = 1	
50183	050189	050194	050200	050205	050210	050216	050221	050226	050232	050237	050243	58	2. 2	
50248	050253	050259	050264	050269	050275	050280	050286	050291	050296	050302	050307	57	3. 3	
50312	050318	050323	050329	050334	050339	050345	050350	050355	050361	050366	050372	56	4. 4	
50377	050382	050388	050393	050398	050404	050409	050415	050420	050425	050431	050436	55	1" = 1	
50441	050447	050452	050458	050463	050468	050474	050479	050485	050490	050495	050501	54	2. 2	
50506	050512	050517	050522	050528	050533	050538	050544	050549	050555	050560	050565	53	3. 3	
50571	050576	050582	050587	050592	050598	050603	050609	050614	050619	050625	050630	52	4. 4	
50635	050641	050646	050652	050657	050662	050668	050673	050679	050684	050689	050695	51	1" = 1	
50700	050706	050711	050716	050722	050727	050733	050738	050743	050749	050754	050760	50	2. 2	
50765	050770	050776	050781	050787	050792	050797	050803	050808	050814	050819	050825	49	3. 3	
50830	050835	050841	050846	050852	050857	050862	050868	050873	050879	050884	050889	48	4. 4	
50895	050900	050906	050911	050916	050922	050927	050933	050938	050944	050949	050954	47	1" = 1	
50960	050965	050971	050976	050981	050987	050992	050998	051003	051009	051014	051019	46	2. 2	
51025	051030	051036	051041	051046	051052	051057	051063	051068	051074	051079	051084	45	3. 3	
51090	051095	051101	051106	051112	051117	051122	051128	051133	051139	051144	051149	44	4. 4	
51155	051160	051166	051171	051177	051182	051187	051193	051198	051204	051209	051215	43	1" = 1	
51220	051225	051231	051236	051242	051247	051253	051258	051263	051269	051274	051280	42	2. 2	
51285	051291	051296	051302	051307	051312	051318	051323	051329	051334	051340	051345	41	3. 3	
51350	051356	051361	051367	051372	051378	051383	051389	051394	051399	051405	051410	40	4. 4	
51416	051421	051427	051432	051437	051443	051448	051454	051459	051465	051470	051476	39	1" = 1	
51481	051486	051492	051497	051503	051508	051514	051519	051525	051530	051536	051541	38	2. 2	
51546	051551	051557	051563	051568	051574	051579	051585	051590	051595	051601	051606	37	3. 3	
51612	051617	051622	051628	051634	051639	051645	051650	051655	051661	051666	051672	36	4. 4	
51677	051682	051688	051694	051699	051705	051710	051715	051721	051726	051732	051737	35	1" = 1	
51743	051748	051754	051759	051765	051770	051776	051781	051786	051792	051797	051803	34	2. 2	
51808	051814	051819	051825	051830	051836	051841	051847	051852	051858	051863	051868	33	3. 3	
51874	051879	051885	051890	051896	051901	051907	051912	051918	051923	051929	051934	32	4. 4	
51940	051945	051951	051956	051961	051967	051972	051978	051983	051989	051994	052000	31	1" = 1	
52005	052011	052016	052022	052027	052033	052038	052044	052049	052055	052060	052066	30	2. 2	
52071	052077	052082	052087	052093	052098	052104	052109	052115	052120	052126	052131	29	3. 3	
52137	052143	052148	052153	052159	052164	052170	052175	052181	052186	052192	052197	28	4. 4	
52203	052208	052214	052219	052225	052230	052236	052241	052247	052252	052258	052263	27	1" = 1	
52269	052274	052280	052285	052290	052296	052301	052307	052312	052318	052323	052329	26	2. 2	
52334	052340	052345	052351	052356	052362	052367	052373	052378	052384	052389	052395	25	3. 3	
52400	052406	052411	052417	052422	052428	052433	052439	052444	052450	052455	052461	24	4. 4	
52466	052472	052477	052483	052488	052494	052499	052505	052510	052516	052522	052527	23	1" = 1	
52532	052538	052544	052549	052555	052560	052566	052571	052577	052582	052588	052593	22	2. 2	
52599	052604	052610	052615	052621	052626	052632	052637	052643	052648	052654	052659	21	3. 3	
52665	052670	052676	052681	052687	052692	052698	052703	052709	052714	052720	052725	20	4. 4	
52731	052737	052742	052748	052753	052759	052764	052770	052775	052781	052786	052792	19	1" = 1	
52797	052803	052808	052814	052819	052825	052830	052836	052841	052847	052853	052858	18	2. 2	
52864	052869	052875	052880	052886	052891	052897	052902	052908	052913	052919	052924	17	3. 3	
52930	052935	052941	052947	052952	052958	052963	052969	052974	052980	052985	052991	16	4. 4	
52996	053002	053007	053013	053018	053024	053030	053035	053041	053046	053052	053057	15	1" = 1	
53063	053068	053074	053079	053085	053090	053096	053102	053107	053113	053118	053124	14	2. 2	
53129	053135	053140	053146	053151	053157	053162	053168	053174	053179	053185	053190	13	3. 3	
53196	053201	053207	053212	053218	053224	053229	053235	053240	053246	053251	053257	12	4. 4	
53262	053268	053273	053279	053285	053290	053296	053301	053307	053312	053318	053323	11	1" = 1	
53329	053335	053340	053346	053351	053357	053362	053368	053373	053379	053385	053390	10	2. 2	
53396	053401	053407	053412	053418	053423	053429	053435	053440	053446	053451	053457	9	3. 3	
53462	053468	053474	053479	053485	053490	053496	053501	053507	053512	053518	053524	8	4. 4	
53529	053535	053540	053546	053551	053557	053563	053568	053574	053579	053585	053590	7	1" = 1	
53596	053602	053607	053613	053618	053624	053629	053635	053641	053646	053652	053657	6	2. 2	
53663	053668	053674	053680	053685	053691	053696	053702	053707	053713	053719	053724	5	3. 3	
53730	053735	053741	053746	053752	053758	053763	053769	053774	053780	053786	053791	4	4. 4	
53797	053802	053808	053813	053819	053825	053830	053836	053841	053847	053853	053858	3	1" = 1	
53864	053869	053875	053880	053886	053892	053897	053903	053908	053914	053920	053925	2	2. 2	
53931	053936	053942	053948	053953	053959	053964	053970	053976	053981	053987	053992	1	3. 3	
53998	054003	054009	054015	054020	054026	054031	054037	054043	054048	054054	054059	0	4. 4	
1'	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"		Minutes	Proport. parts.
Co-secant of 62 degrees, or Secant of 152 degrees.														

LOGARITHMIC SECANTS.

Secant of 28 degrees, or Co-secant of 118 degrees.														
Minutes	0'	5"	10'	15"	20'	25"	30'	35"	40'	45"	50'	55"	Minutes	Proport.
0	10.054065	054071	054076	054082	054087	054093	054099	054104	054110	054115	054121	054127	59	1"
1	10.054132	054138	054143	054149	054155	054160	054166	054171	054177	054183	054188	054194	58	2
2	10.054199	054205	054211	054216	054222	054227	054233	054239	054244	054250	054256	054261	57	3
3	10.054267	054272	054278	054284	054289	054295	054300	054306	054312	054317	054323	054328	56	4
4	10.054334	054340	054345	054351	054357	054362	054368	054373	054379	054385	054390	054396	55	1 =
5	10.054401	054407	054413	054418	054424	054430	054435	054441	054446	054452	054458	054463	54	2
6	10.054469	054475	054480	054486	054491	054497	054503	054508	054514	054520	054525	054531	53	3
7	10.054536	054542	054548	054553	054559	054565	054570	054576	054581	054587	054593	054598	52	4
8	10.054604	054610	054615	054621	054626	054632	054638	054643	054649	054655	054660	054666	51	1 =
9	10.054671	054677	054683	054688	054694	054700	054705	054711	054717	054722	054728	054733	50	2
10	10.054739	054745	054750	054756	054762	054767	054773	054779	054784	054790	054795	054801	49	3
11	10.054807	054812	054818	054824	054829	054835	054841	054846	054852	054858	054863	054869	48	4
12	10.054874	054880	054886	054891	054897	054903	054908	054914	054920	054925	054931	054937	47	1 =
13	10.054942	054948	054954	054959	054965	054970	054976	054982	054987	054993	054999	055004	46	2
14	10.055010	055016	055021	055027	055033	055038	055044	055050	055055	055061	055067	055072	45	3
15	10.055078	055084	055089	055095	055101	055106	055112	055118	055123	055129	055134	055140	44	4
16	10.055146	055151	055157	055163	055168	055174	055180	055185	055191	055197	055202	055208	43	1 =
17	10.055214	055219	055225	055231	055236	055242	055248	055253	055259	055265	055270	055276	42	2
18	10.055282	055287	055293	055299	055304	055310	055316	055321	055327	055333	055338	055344	41	3
19	10.055350	055355	055361	055367	055372	055378	055384	055390	055395	055401	055407	055412	40	4
20	10.055418	055424	055429	055435	055441	055446	055452	055458	055463	055469	055475	055480	39	1 =
21	10.055486	055492	055497	055503	055509	055514	055520	055526	055531	055537	055543	055549	38	2
22	10.055554	055560	055566	055571	055577	055583	055588	055594	055600	055605	055611	055617	37	3
23	10.055622	055628	055634	055640	055645	055651	055657	055662	055668	055674	055679	055685	36	4
24	10.055691	055696	055702	055708	055714	055719	055725	055731	055736	055742	055748	055753	35	1 =
25	10.055759	055765	055770	055776	055782	055788	055793	055799	055805	055811	055816	055822	34	2
26	10.055827	055833	055839	055845	055850	055856	055862	055867	055873	055879	055884	055890	33	3
27	10.055896	055902	055907	055913	055919	055924	055930	055936	055942	055947	055953	055959	32	4
28	10.055964	055970	055976	055981	055987	055993	055999	056004	056010	056016	056021	056027	31	1 =
29	10.056033	056039	056044	056050	056056	056061	056067	056073	056079	056084	056090	056096	30	2
30	10.056101	056107	056113	056119	056124	056130	056136	056141	056147	056153	056159	056164	29	3
31	10.056169	056176	056182	056187	056193	056199	056204	056210	056216	056222	056227	056233	28	4
32	10.056239	056244	056250	056256	056262	056267	056273	056279	056285	056290	056296	056302	27	1 =
33	10.056307	056313	056319	056325	056330	056336	056342	056348	056353	056359	056365	056370	26	2
34	10.056376	056382	056388	056393	056399	056405	056411	056416	056422	056428	056434	056439	25	3
35	10.056445	056451	056456	056462	056468	056474	056479	056485	056491	056497	056502	056508	24	4
36	10.056514	056520	056525	056531	056537	056543	056548	056554	056560	056566	056571	056577	23	1 =
37	10.056583	056589	056594	056600	056606	056611	056617	056623	056629	056634	056640	056646	22	2
38	10.056652	056657	056663	056669	056675	056680	056686	056692	056698	056703	056709	056715	21	3
39	10.056721	056726	056732	056738	056744	056749	056755	056761	056767	056772	056778	056784	20	4
40	10.056790	056796	056801	056807	056813	056819	056824	056830	056836	056842	056847	056853	19	1 =
41	10.056859	056865	056870	056876	056882	056888	056893	056899	056905	056911	056916	056922	18	2
42	10.056928	056934	056940	056945	056951	056957	056963	056968	056974	056980	056986	056991	17	3
43	10.056997	057003	057009	057014	057020	057026	057032	057038	057043	057049	057055	057061	16	4
44	10.057066	057072	057078	057084	057089	057095	057101	057107	057113	057118	057124	057130	15	1 =
45	10.057136	057141	057147	057153	057159	057165	057170	057176	057182	057188	057193	057199	14	2
46	10.057207	057211	057217	057223	057228	057234	057240	057245	057251	057257	057263	057269	13	3
47	10.057274	057280	057286	057292	057298	057303	057309	057315	057321	057326	057332	057338	12	4
48	10.057344	057350	057355	057361	057367	057373	057379	057384	057390	057396	057402	057408	11	1 =
49	10.057413	057419	057425	057431	057436	057442	057448	057454	057460	057465	057471	057477	10	2
50	10.057483	057489	057494	057500	057506	057512	057518	057523	057529	057535	057541	057547	9	3
51	10.057552	057558	057564	057570	057576	057581	057587	057593	057599	057605	057610	057616	8	4
52	10.057623	057628	057634	057639	057645	057651	057657	057663	057668	057674	057680	057686	7	1 =
53	10.057692	057697	057703	057709	057715	057721	057727	057732	057738	057744	057750	057756	6	2
54	10.057761	057767	057773	057779	057785	057790	057796	057802	057808	057814	057820	057825	5	3
55	10.057831	057837	057843	057849	057854	057860	057866	057872	057878	057884	057889	057895	4	4
56	10.057901	057907	057913	057918	057924	057930	057936	057942	057948	057953	057959	057965	3	1 =
57	10.057971	057977	057982	057988	057994	058000	058006	058012	058017	058023	058029	058035	2	2
58	10.058041	058047	058052	058058	058064	058070	058076	058082	058087	058093	058099	058105	1	3
59	10.058111	058117	058122	058128	058134	058140	058146	058152	058157	058163	058169	058175	0	4
Minutes	60	55"	50'	45"	40'	35"	30'	25"	20'	15"	10'	5"	Minutes	Proport.
Co-secant of 61 degrees, or Secant of 151 degrees.														

LOGARITHMIC SECANTS.

Secant of 29 degrees, or Co-secant of 119 degrees.											Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
81	058187	058192	058198	058204	058210	058216	058222	058227	058233	058239	59	1° = 1
51	058257	058262	058268	058274	058280	058286	058292	058297	058303	058309	58	2. 2
21	058327	058333	058338	058344	058350	058356	058362	058368	058373	058379	57	3. 4
91	058397	058403	058409	058414	058420	058426	058432	058438	058444	058449	56	4. 5
61	058467	058473	058479	058485	058490	058496	058502	058508	058514	058520	55	1° = 1
31	058537	058543	058549	058555	058561	058567	058572	058578	058584	058590	54	2. 2
02	058608	058613	058619	058625	058631	058637	058643	058649	058654	058660	53	3. 4
72	058678	058684	058690	058696	058701	058707	058713	058719	058725	058731	52	4. 5
42	058748	058754	058760	058766	058772	058778	058784	058789	058795	058801	51	1° = 1
13	058819	058825	058830	058836	058842	058848	058854	058860	058866	058872	50	2. 2
83	058889	058895	058901	058907	058913	058919	058924	058930	058936	058942	49	3. 4
54	058960	058966	058972	058977	058983	058989	058995	059001	059007	059013	48	4. 5
24	059030	059036	059042	059048	059054	059060	059066	059072	059077	059083	47	1° = 1
95	059101	059107	059113	059119	059125	059130	059136	059142	059148	059154	46	2. 2
66	059172	059178	059183	059189	059195	059201	059207	059213	059219	059225	45	3. 4
37	059242	059248	059254	059260	059266	059272	059278	059284	059290	059295	44	4. 5
07	059313	059319	059325	059331	059337	059343	059349	059354	059360	059366	43	1° = 1
78	059384	059390	059396	059402	059408	059414	059419	059425	059431	059437	42	2. 2
49	059455	059461	059467	059473	059479	059484	059490	059496	059502	059508	41	3. 4
20	059526	059532	059538	059544	059549	059555	059561	059567	059573	059579	40	4. 5
91	059597	059603	059609	059615	059620	059626	059632	059638	059644	059650	39	1° = 1
62	059668	059674	059680	059686	059691	059697	059703	059709	059715	059721	38	2. 2
33	059739	059745	059751	059757	059763	059768	059774	059780	059786	059792	37	3. 4
04	059810	059816	059822	059828	059834	059840	059846	059851	059857	059863	36	4. 5
75	059881	059887	059893	059899	059905	059911	059917	059923	059929	059935	35	1° = 1
46	059952	059958	059964	059970	059976	059982	059988	059994	060000	060006	34	2. 2
18	060024	060030	060035	060041	060047	060053	060059	060065	060071	060077	33	3. 4
89	060095	060101	060107	060113	060119	060125	060131	060137	060142	060148	32	4. 5
60	060166	060172	060178	060184	060190	060196	060202	060208	060214	060220	31	1° = 1
32	060238	060244	060250	060256	060261	060267	060273	060279	060285	060291	30	2. 2
03	060309	060315	060321	060327	060333	060339	060345	060351	060357	060363	29	3. 4
75	060381	060387	060393	060399	060404	060410	060416	060422	060428	060434	28	4. 5
46	060452	060458	060464	060470	060476	060482	060488	060494	060500	060506	27	1° = 1
18	060524	060530	060536	060542	060548	060554	060560	060566	060572	060578	26	2. 2
89	060595	060601	060607	060613	060619	060625	060631	060637	060643	060649	25	3. 4
61	060667	060673	060679	060685	060691	060697	060703	060709	060715	060721	24	4. 5
33	060739	060745	060751	060757	060763	060769	060775	060781	060787	060793	23	1° = 1
05	060811	060817	060823	060829	060835	060841	060847	060853	060859	060865	22	2. 2
77	060883	060889	060894	060900	060906	060912	060918	060924	060930	060936	21	3. 4
48	060954	060960	060966	060972	060978	060984	060990	060996	061002	061008	20	4. 5
20	061026	061032	061038	061044	061050	061056	061062	061068	061074	061080	19	1° = 1
92	061098	061104	061110	061116	061122	061128	061134	061140	061146	061152	18	2. 2
64	061170	061176	061182	061188	061194	061200	061206	061212	061218	061224	17	3. 4
36	061242	061248	061254	061260	061266	061273	061279	061285	061291	061297	16	4. 5
09	061315	061321	061327	061333	061339	061345	061351	061357	061363	061369	15	1° = 1
81	061387	061393	061399	061405	061411	061417	061423	061429	061435	061441	14	2. 2
53	061459	061465	061471	061477	061483	061489	061495	061501	061507	061513	13	3. 4
25	061531	061537	061543	061549	061555	061561	061567	061573	061580	061586	12	4. 5
98	061604	061610	061616	061622	061628	061634	061640	061646	061652	061658	11	1° = 1
70	061676	061682	061688	061694	061700	061706	061712	061718	061724	061730	10	2. 2
42	061748	061754	061761	061767	061773	061779	061785	061791	061797	061803	9	3. 4
15	061821	061827	061833	061839	061845	061851	061857	061863	061869	061875	8	4. 5
87	061893	061899	061906	061912	061918	061924	061930	061936	061942	061948	7	1° = 1
60	061966	061972	061978	061984	061990	061996	062002	062008	062014	062020	6	2. 2
33	062039	062045	062051	062057	062063	062069	062075	062081	062087	062093	5	3. 4
05	062111	062117	062123	062129	062136	062142	062148	062154	062160	062166	4	4. 5
78	062184	062190	062196	062202	062208	062214	062220	062226	062233	062239	3	1° = 1
51	062257	062263	062269	062275	062281	062287	062293	062299	062305	062311	2	2. 2
24	062330	062336	062342	062348	062354	062360	062366	062372	062378	062384	1	3. 4
96	062402	062409	062415	062421	062427	062433	062439	062445	062451	062457	0	4. 5
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-secant of 60 degrees, or Secant of 150 degrees.											Minutes	Proport. parts.

LOGARITHMIC SECANTS.

Secant of 30 degrees, or Co-secant of 120 degrees.													
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes
0	10.062469	062475	062481	062488	062494	062500	062506	062512	062518	062524	062530	062536	59
1	10.062542	062548	062554	062561	062567	062573	062579	062585	062591	062597	062603	062609	58
2	10.062615	062621	062627	062634	062640	062646	062652	062658	062664	062670	062676	062682	57
3	10.062688	062694	062701	062707	062713	062719	062725	062731	062737	062743	062749	062755	56
4	10.062761	062768	062774	062780	062786	062792	062798	062804	062810	062816	062822	062829	55
5	10.062835	062841	062847	062853	062859	062865	062871	062877	062883	062889	062896	062902	54
6	10.062908	062914	062920	062926	062932	062938	062944	062951	062957	062963	062969	062975	53
7	10.062981	062987	062993	062999	063006	063012	063018	063024	063030	063036	063042	063048	52
8	10.063054	063060	063067	063073	063079	063085	063091	063097	063103	063109	063116	063122	51
9	10.063128	063134	063140	063146	063152	063158	063164	063171	063177	063183	063189	063195	50
10	10.063201	063207	063213	063220	063226	063232	063238	063244	063250	063256	063262	063268	49
11	10.063275	063281	063287	063293	063299	063305	063311	063317	063324	063330	063336	063342	48
12	10.063348	063354	063360	063366	063373	063379	063385	063391	063397	063403	063409	063416	47
13	10.063422	063428	063434	063440	063446	063452	063458	063465	063471	063477	063483	063489	46
14	10.063495	063501	063508	063514	063520	063526	063532	063538	063544	063550	063557	063563	45
15	10.063569	063575	063581	063587	063593	063600	063606	063612	063618	063624	063630	063636	44
16	10.063643	063649	063655	063661	063667	063673	063679	063686	063692	063698	063704	063710	43
17	10.063716	063722	063729	063735	063741	063747	063753	063759	063766	063772	063778	063784	42
18	10.063790	063796	063802	063809	063815	063821	063827	063833	063839	063846	063852	063858	41
19	10.063864	063870	063876	063882	063889	063895	063901	063907	063913	063919	063926	063932	40
20	10.063938	063944	063950	063956	063963	063969	063975	063981	063987	063993	064000	064006	39
21	10.064012	064018	064024	064030	064036	064043	064049	064055	064061	064067	064073	064080	38
22	10.064086	064092	064098	064104	064111	064117	064123	064129	064135	064141	064148	064154	37
23	10.064160	064166	064172	064178	064185	064191	064197	064203	064209	064215	064222	064228	36
24	10.064234	064240	064246	064252	064259	064265	064271	064277	064283	064290	064296	064302	35
25	10.064308	064314	064320	064327	064333	064339	064345	064351	064358	064364	064370	064376	34
26	10.064382	064388	064395	064401	064407	064413	064419	064426	064432	064438	064444	064450	33
27	10.064457	064463	064469	064475	064481	064487	064494	064500	064506	064512	064518	064525	32
28	10.064531	064537	064543	064549	064556	064562	064568	064574	064580	064587	064593	064599	31
29	10.064605	064611	064618	064624	064630	064636	064642	064649	064655	064661	064667	064673	30
30	10.064680	064686	064692	064698	064704	064711	064717	064723	064729	064735	064742	064748	29
31	10.064754	064760	064766	064773	064779	064785	064791	064797	064804	064810	064816	064822	28
32	10.064828	064835	064841	064847	064853	064860	064866	064872	064878	064884	064891	064897	27
33	10.064903	064909	064915	064922	064928	064934	064940	064947	064953	064959	064965	064971	26
34	10.064978	064984	064990	064996	065002	065009	065015	065021	065027	065034	065040	065046	25
35	10.065052	065058	065065	065071	065077	065083	065090	065096	065102	065108	065114	065121	24
36	10.065127	065133	065139	065146	065152	065158	065164	065171	065177	065183	065189	065195	23
37	10.065202	065208	065214	065220	065227	065233	065239	065245	065252	065258	065264	065270	22
38	10.065275	065281	065287	065293	065300	065306	065312	065319	065325	065332	065338	065345	21
39	10.065351	065358	065364	065370	065376	065382	065389	065395	065401	065407	065414	065420	20
40	10.065426	065432	065439	065445	065451	065457	065464	065470	065476	065482	065489	065495	19
41	10.065501	065507	065514	065520	065526	065532	065539	065545	065551	065557	065564	065570	18
42	10.065576	065582	065589	065595	065601	065607	065614	065620	065626	065632	065639	065645	17
43	10.065651	065657	065664	065670	065676	065682	065689	065695	065701	065707	065714	065720	16
44	10.065726	065732	065739	065745	065751	065758	065764	065770	065776	065783	065789	065795	15
45	10.065801	065808	065814	065820	065826	065833	065839	065845	065851	065858	065864	065870	14
46	10.065877	065883	065889	065895	065902	065908	065914	065920	065927	065933	065939	065946	13
47	10.065952	065958	065964	065971	065977	065983	065989	065996	066002	066008	066015	066021	12
48	10.066027	066033	066040	066046	066052	066058	066065	066071	066077	066084	066090	066096	11
49	10.066102	066109	066115	066121	066128	066134	066140	066146	066153	066159	066165	066171	10
50	10.066178	066184	066190	066197	066203	066209	066215	066222	066228	066234	066241	066247	9
51	10.066253	066260	066266	066272	066278	066285	066291	066297	066304	066310	066316	066322	8
52	10.066329	066335	066341	066348	066354	066360	066366	066373	066379	066385	066392	066398	7
53	10.066404	066411	066417	066423	066429	066436	066442	066448	066455	066461	066467	066474	6
54	10.066480	066486	066492	066499	066505	066511	066518	066524	066530	066537	066543	066549	5
55	10.066555	066562	066568	066574	066581	066587	066593	066600	066606	066612	066619	066625	4
56	10.066631	066637	066644	066650	066656	066663	066669	066675	066682	066688	066694	066701	3
57	10.066707	066713	066719	066726	066732	066738	066745	066751	066757	066764	066770	066776	2
58	10.066783	066789	066795	066802	066808	066814	066821	066827	066833	066840	066846	066852	1
59	10.066858	066865	066871	066877	066884	066890	066896	066903	066909	066915	066922	066928	0
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	
Co-secant of 59 degrees, or Secant of 149 degrees.													
Minutes													Minutes

LOGARITHMIC SECANTS.

Secant of 31 degrees, or Co-secant of 121 degrees.												Minutes	Proportional parts.
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
934	066941	066947	066953	066960	066966	066972	066979	066985	066991	066998	067004	59	1" = 1
910	067017	067023	067029	067036	067042	067048	067055	067061	067067	067074	067080	58	2. 3
886	067093	067099	067105	067112	067118	067124	067131	067137	067143	067150	067156	57	3. 4
162	067169	067175	067181	067188	067194	067200	067207	067213	067219	067226	067232	56	4. 5
238	067245	067251	067257	067264	067270	067276	067283	067289	067295	067302	067308	55	1 = 1
315	067321	067327	067334	067340	067346	067353	067359	067365	067372	067378	067384	54	2. 3
391	067397	067403	067410	067416	067422	067429	067435	067442	067448	067454	067461	53	3. 4
467	067473	067480	067486	067492	067499	067505	067511	067518	067524	067530	067537	52	4. 5
543	067550	067556	067562	067569	067575	067581	067588	067594	067600	067607	067613	51	1 = 1
620	067626	067632	067639	067645	067651	067658	067664	067670	067677	067683	067690	50	2. 3
696	067702	067709	067715	067721	067728	067734	067741	067747	067753	067760	067766	49	3. 4
772	067779	067785	067791	067798	067804	067811	067817	067823	067830	067836	067842	48	4. 5
849	067855	067862	067868	067874	067881	067887	067893	067900	067906	067913	067919	47	1 = 1
925	067932	067938	067945	067951	067957	067964	067970	067976	067983	067989	067996	46	2. 3
002	068008	068015	068021	068028	068034	068040	068047	068053	068059	068066	068072	45	3. 4
079	068085	068091	068098	068104	068111	068117	068123	068130	068136	068143	068149	44	4. 5
155	068162	068168	068174	068181	068187	068194	068200	068206	068213	068219	068226	43	1 = 1
232	068238	068245	068251	068258	068264	068270	068277	068283	068290	068296	068302	42	2. 3
309	068315	068322	068328	068334	068341	068347	068354	068360	068366	068373	068379	41	3. 4
386	068392	068398	068405	068411	068418	068424	068430	068437	068443	068450	068456	40	4. 5
463	068469	068475	068482	068488	068495	068501	068507	068514	068520	068527	068533	39	1 = 1
539	068546	068552	068559	068565	068572	068578	068584	068591	068597	068604	068610	38	2. 3
616	068623	068629	068636	068642	068649	068655	068661	068668	068674	068681	068687	37	3. 4
693	068700	068706	068713	068719	068726	068732	068738	068745	068751	068758	068764	36	4. 5
771	068777	068783	068790	068796	068803	068809	068816	068822	068828	068835	068841	35	1 = 1
848	068854	068861	068867	068873	068880	068886	068893	068899	068906	068912	068918	34	2. 3
925	068931	068938	068944	068951	068957	068964	068970	068976	068983	068989	068996	33	3. 4
002	069009	069015	069022	069028	069034	069041	069047	069054	069060	069067	069073	32	4. 5
079	069086	069092	069099	069105	069112	069118	069125	069131	069137	069144	069150	31	1 = 1
157	069163	069170	069176	069183	069189	069195	069202	069208	069215	069221	069228	30	2. 3
234	069241	069247	069254	069260	069266	069273	069279	069286	069292	069299	069305	29	3. 4
312	069318	069325	069331	069337	069344	069350	069357	069363	069370	069376	069383	28	4. 5
389	069396	069402	069408	069415	069421	069428	069434	069441	069447	069454	069460	27	1 = 1
467	069473	069480	069486	069492	069499	069505	069512	069518	069525	069531	069538	26	2. 3
544	069551	069557	069564	069570	069577	069583	069590	069596	069602	069609	069615	25	3. 4
622	069628	069635	069641	069648	069654	069661	069667	069674	069680	069687	069693	24	4. 5
700	069706	069713	069719	069725	069732	069738	069745	069751	069758	069764	069771	23	1 = 1
777	069784	069790	069797	069803	069810	069816	069823	069829	069836	069842	069849	22	2. 3
855	069862	069868	069875	069881	069888	069894	069901	069907	069913	069920	069926	21	3. 4
933	069939	069946	069952	069959	069965	069972	069978	069985	069991	069998	070004	20	4. 5
011	070017	070024	070030	070037	070043	070050	070056	070063	070069	070076	070082	19	1 = 1
089	070095	070102	070108	070115	070121	070128	070134	070141	070147	070154	070160	18	2. 3
167	070173	070180	070186	070193	070199	070206	070212	070219	070225	070232	070238	17	3. 4
245	070251	070258	070264	070271	070277	070284	070290	070297	070303	070310	070316	16	4. 5
323	070329	070336	070342	070349	070356	070362	070369	070375	070382	070388	070395	15	1 = 1
401	070408	070414	070421	070427	070434	070440	070447	070453	070460	070466	070473	14	2. 3
479	070486	070492	070499	070505	070512	070518	070525	070531	070538	070545	070551	13	3. 4
558	070564	070571	070577	070584	070590	070597	070603	070610	070616	070623	070629	12	4. 5
636	070642	070649	070655	070662	070668	070675	070682	070688	070695	070701	070708	11	1 = 1
714	070721	070727	070734	070740	070747	070753	070760	070766	070773	070780	070786	10	2. 3
793	070799	070806	070812	070819	070825	070832	070838	070845	070851	070858	070865	9	3. 4
871	070878	070884	070891	070897	070904	070910	070917	070923	070930	070936	070943	8	4. 5
950	070956	070963	070969	070976	070982	070989	070995	071002	071008	071015	071022	7	1 = 1
028	071035	071041	071048	071054	071061	071067	071074	071081	071087	071094	071100	6	2. 3
107	071113	071120	071126	071133	071140	071146	071153	071159	071166	071172	071179	5	3. 4
185	071192	071199	071205	071212	071218	071225	071231	071238	071244	071251	071258	4	4. 5
264	071271	071277	071284	071290	071297	071303	071310	071317	071323	071330	071336	3	1 = 1
343	071349	071356	071363	071369	071376	071382	071389	071395	071402	071409	071415	2	2. 3
422	071428	071435	071441	071448	071455	071461	071468	071474	071481	071487	071494	1	3. 4
501	071507	071514	071520	071527	071533	071540	071547	071553	071560	071566	071573	0	4. 5
55	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'		Minutes	Proportional parts.
Co-secant of 58 degrees, or Secant of 148 degrees.												Minutes	Proportional parts.

LOGARITHMIC SECANTS.

Secant of 32 degrees, or Co-secant of 122 degrees.															
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Progr.	
0	10.071579	071586	071593	071599	071606	071612	071619	071626	071632	071639	071645	071652	59	1"	
1	10.071658	071665	071672	071678	071685	071691	071698	071705	071711	071718	071724	071731	58	2.	
2	10.071737	071744	071751	071757	071764	071770	071777	071784	071790	071797	071803	071810	57	3.	
3	10.071817	071823	071830	071836	071843	071849	071856	071863	071869	071876	071882	071889	56	4.	
4	10.071896	071902	071909	071915	071922	071929	071935	071942	071948	071955	071962	071968	55	1 =	
5	10.071975	071981	071988	071995	072001	072008	072014	072021	072028	072034	072041	072047	54	2.	
6	10.072054	072061	072067	072074	072080	072087	072094	072100	072107	072113	072120	072127	53	3.	
7	10.072133	072140	072147	072153	072160	072166	072173	072180	072186	072193	072199	072206	52	4.	
8	10.072213	072219	072226	072232	072239	072246	072252	072259	072266	072272	072279	072285	51	1 =	
9	10.072292	072299	072305	072312	072318	072325	072332	072338	072345	072352	072358	072365	50	2.	
10	10.072371	072378	072385	072391	072398	072405	072411	072418	072424	072431	072438	072444	49	3.	
11	10.072451	072458	072464	072471	072477	072484	072491	072497	072504	072511	072517	072524	48	4.	
12	10.072530	072537	072544	072550	072557	072564	072570	072577	072583	072590	072597	072603	47	1 =	
13	10.072610	072617	072623	072630	072637	072643	072650	072656	072663	072670	072676	072683	46	2.	
14	10.072690	072696	072703	072710	072716	072723	072729	072736	072743	072749	072756	072763	45	3.	
15	10.072769	072776	072783	072789	072796	072803	072809	072816	072822	072829	072836	072842	44	4.	
16	10.072849	072856	072862	072869	072876	072882	072889	072896	072902	072909	072916	072922	43	1 =	
17	10.072929	072936	072942	072949	072955	072962	072969	072975	072982	072989	072995	073002	42	2.	
18	10.073009	073015	073022	073029	073035	073042	073049	073055	073062	073069	073075	073082	41	3.	
19	10.073089	073095	073102	073109	073115	073122	073129	073135	073142	073149	073155	073162	40	4.	
20	10.073169	073175	073182	073189	073195	073202	073209	073215	073222	073229	073235	073242	39	1 =	
21	10.073249	073255	073262	073269	073275	073282	073289	073295	073302	073309	073315	073322	38	2.	
22	10.073329	073335	073342	073349	073355	073362	073369	073375	073382	073389	073395	073402	37	3.	
23	10.073409	073415	073422	073429	073435	073442	073449	073455	073462	073469	073475	073482	36	4.	
24	10.073489	073495	073502	073509	073516	073522	073529	073536	073542	073549	073555	073562	35	1 =	
25	10.073569	073576	073582	073589	073596	073602	073609	073616	073622	073629	073636	073643	34	2.	
26	10.073649	073656	073663	073669	073676	073683	073689	073696	073703	073709	073716	073723	33	3.	
27	10.073730	073736	073743	073750	073756	073763	073770	073776	073783	073790	073797	073803	32	4.	
28	10.073810	073817	073823	073830	073837	073843	073850	073857	073863	073870	073877	073884	31	1 =	
29	10.073890	073897	073904	073910	073917	073924	073931	073937	073944	073951	073957	073964	30	2.	
30	10.073971	073977	073984	073991	073998	074004	074011	074018	074024	074031	074038	074045	29	3.	
31	10.074051	074058	074065	074071	074078	074085	074092	074098	074105	074112	074118	074125	28	4.	
32	10.074132	074139	074145	074152	074159	074165	074172	074179	074186	074192	074199	074206	27	1 =	
33	10.074212	074219	074226	074233	074239	074246	074253	074259	074266	074273	074280	074286	26	2.	
34	10.074293	074300	074307	074313	074320	074327	074333	074340	074347	074354	074360	074367	25	3.	
35	10.074374	074381	074387	074394	074401	074407	074414	074421	074428	074434	074441	074448	24	4.	
36	10.074455	074462	074468	074475	074482	074488	074495	074502	074508	074515	074522	074529	23	1 =	
37	10.074535	074542	074549	074556	074562	074569	074576	074583	074589	074596	074603	074610	22	2.	
38	10.074616	074623	074630	074636	074643	074650	074657	074663	074670	074677	074684	074690	21	3.	
39	10.074697	074704	074711	074717	074724	074731	074738	074744	074751	074758	074765	074771	20	4.	
40	10.074778	074785	074792	074798	074805	074812	074819	074825	074832	074839	074846	074852	19	1 =	
41	10.074859	074866	074873	074879	074886	074893	074900	074906	074913	074920	074927	074934	18	2.	
42	10.074940	074947	074954	074961	074967	074974	074981	074988	074994	075001	075008	075015	17	3.	
43	10.075021	075028	075035	075042	075048	075055	075062	075069	075076	075082	075089	075096	16	4.	
44	10.075103	075109	075116	075123	075130	075136	075143	075150	075157	075163	075170	075177	15	1 =	
45	10.075184	075191	075197	075204	075211	075218	075224	075231	075238	075245	075252	075258	14	2.	
46	10.075265	075272	075279	075285	075292	075299	075306	075313	075319	075326	075333	075340	13	3.	
47	10.075346	075353	075360	075367	075374	075380	075387	075394	075401	075407	075414	075421	12	4.	
48	10.075428	075435	075441	075448	075455	075462	075469	075475	075482	075489	075496	075502	11	1 =	
49	10.075509	075516	075523	075530	075536	075543	075550	075557	075564	075570	075577	075584	10	2.	
50	10.075591	075598	075604	075611	075618	075625	075632	075638	075645	075652	075659	075666	9	3.	
51	10.075672	075679	075686	075693	075699	075706	075713	075720	075727	075733	075740	075747	8	4.	
52	10.075754	075761	075767	075774	075781	075788	075795	075802	075808	075815	075822	075829	7	1 =	
53	10.075836	075842	075849	075856	075863	075870	075876	075883	075890	075897	075904	075910	6	2.	
54	10.075917	075924	075931	075938	075944	075951	075958	075965	075972	075979	075985	075992	5	3.	
55	10.075999	076006	076013	076019	076026	076033	076040	076047	076054	076060	076067	076074	4	4.	
56	10.076081	076088	076094	076101	076108	076115	076122	076129	076135	076142	076149	076156	3	1 =	
57	10.076163	076169	076176	076183	076190	076197	076204	076210	076217	076224	076231	076238	2	2.	
58	10.076245	076251	076258	076265	076272	076279	076286	076292	076299	076306	076313	076320	1	3.	
59	10.076327	076333	076340	076347	076354	076361	076368	076374	076381	076388	076395	076402	0	4.	
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'			
Co-secant of 57 degrees, or Secant of 147 degrees.															
Minutes													Minutes	Progr.	

LOGARITHMIC SECANTS.

Secant of 33 degrees, or Co-secant of 123 degrees.											Minutes	Proport. parts.
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
409	076415	076422	076429	076436	076443	076450	076456	076463	076470	076477	59	1" = 1
491	076497	076504	076511	076518	076525	076532	076539	076545	076552	076559	58	2. 3
573	076580	076586	076593	076600	076607	076614	076621	076628	076634	076641	57	3. 4
655	076662	076669	076675	076682	076689	076696	076703	076710	076717	076723	56	4. 5
737	076744	076751	076758	076765	076771	076778	076785	076792	076799	076806	55	1" = 1
819	076826	076833	076840	076847	076854	076861	076867	076874	076881	076888	54	2. 3
902	076909	076915	076922	076929	076936	076943	076950	076957	076964	076970	53	3. 4
984	076991	076998	077005	077012	077018	077025	077032	077039	077046	077053	52	4. 5
1067	077073	077080	077087	077094	077101	077108	077115	077122	077128	077135	51	1" = 1
1149	077156	077163	077170	077177	077183	077190	077197	077204	077211	077218	50	2. 3
1232	077238	077245	077252	077259	077266	077273	077280	077287	077294	077300	49	3. 4
1314	077321	077328	077335	077342	077349	077355	077362	077369	077376	077383	48	4. 5
1397	077404	077411	077417	077424	077431	077438	077445	077452	077459	077466	47	1" = 1
1479	077486	077493	077500	077507	077514	077521	077528	077535	077542	077548	46	2. 3
1562	077569	077576	077583	077590	077597	077604	077611	077617	077624	077631	45	3. 4
1645	077652	077659	077666	077673	077680	077686	077693	077700	077707	077714	44	4. 6
1728	077735	077742	077749	077756	077762	077769	077776	077783	077790	077797	43	1" = 1
1811	077818	077825	077832	077838	077845	077852	077859	077866	077873	077880	42	2. 3
1894	077901	077908	077915	077921	077928	077935	077942	077949	077956	077963	41	3. 4
1977	077984	077991	077998	078004	078011	078018	078025	078032	078039	078046	40	4. 6
2060	078067	078074	078081	078088	078094	078101	078108	078115	078122	078129	39	1" = 1
2143	078150	078157	078164	078171	078178	078185	078191	078198	078205	078212	38	2. 3
2226	078233	078240	078247	078254	078261	078268	078275	078282	078289	078295	37	3. 4
2309	078316	078323	078330	078337	078344	078351	078358	078365	078372	078379	36	4. 6
2392	078400	078406	078413	078420	078427	078434	078441	078448	078455	078462	35	1" = 1
2475	078483	078490	078497	078504	078511	078518	078525	078532	078538	078545	34	2. 3
2558	078566	078573	078580	078587	078594	078601	078608	078615	078622	078629	33	3. 4
2641	078650	078657	078664	078671	078678	078684	078691	078698	078705	078712	32	4. 6
2724	078733	078740	078747	078754	078761	078768	078775	078782	078789	078796	31	1" = 1
2807	078817	078824	078831	078838	078845	078852	078859	078865	078872	078879	30	2. 3
2890	078900	078907	078914	078921	078928	078935	078942	078949	078956	078963	29	3. 4
2973	078984	078991	078998	079005	079012	079019	079026	079033	079040	079047	28	4. 6
3056	079068	079075	079082	079089	079096	079103	079110	079117	079124	079130	27	1" = 1
3139	079151	079158	079165	079172	079179	079186	079193	079200	079207	079214	26	2. 3
3222	079235	079242	079249	079256	079263	079270	079277	079284	079291	079298	25	3. 4
3305	079319	079326	079333	079340	079347	079354	079361	079368	079375	079382	24	4. 6
3388	079403	079410	079417	079424	079431	079438	079445	079452	079459	079466	23	1" = 1
3471	079487	079494	079501	079508	079515	079522	079529	079536	079543	079550	22	2. 3
3554	079571	079578	079585	079592	079599	079606	079613	079620	079627	079634	21	3. 4
3637	079655	079662	079669	079676	079683	079690	079697	079704	079711	079718	20	4. 6
3720	079739	079746	079753	079760	079767	079774	079781	079788	079795	079802	19	1" = 1
3803	079823	079830	079837	079844	079851	079858	079865	079872	079880	079887	18	2. 3
3886	079908	079915	079922	079929	079936	079943	079950	079957	079964	079971	17	3. 4
3969	079992	079999	080006	080013	080020	080027	080034	080041	080048	080055	16	4. 6
4052	080076	080083	080090	080097	080104	080111	080118	080125	080132	080140	15	1" = 1
4135	080161	080168	080175	080182	080189	080196	080203	080210	080217	080224	14	2. 3
4218	080245	080252	080259	080266	080273	080280	080287	080294	080301	080308	13	3. 4
4301	080330	080337	080344	080351	080358	080365	080372	080379	080386	080393	12	4. 6
4384	080414	080421	080428	080435	080442	080449	080456	080463	080470	080478	11	1" = 1
4467	080499	080506	080513	080520	080527	080534	080541	080548	080555	080562	10	2. 3
4550	080583	080590	080597	080605	080612	080619	080626	080633	080640	080647	9	3. 4
4633	080668	080675	080682	080689	080696	080703	080710	080717	080725	080732	8	4. 6
4716	080753	080760	080767	080774	080781	080788	080795	080802	080809	080816	7	1" = 1
4799	080838	080845	080852	080859	080866	080873	080880	080887	080894	080901	6	2. 3
4882	080923	080930	080937	080944	080951	080958	080965	080972	080979	080986	5	3. 4
4965	081007	081015	081022	081029	081036	081043	081050	081057	081064	081071	4	4. 6
5048	081092	081099	081107	081114	081121	081128	081135	081142	081149	081156	3	1" = 1
5131	081177	081185	081192	081199	081206	081213	081220	081227	081234	081241	2	2. 3
5214	081263	081270	081277	081284	081291	081298	081305	081312	081319	081326	1	3. 4
5297	081348	081355	081362	081369	081376	081383	081390	081397	081404	081412	0	4. 6
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-secant of 56 degrees, or Secant of 146 degrees.												

LOGARITHMIC SECANTS.

Secant of 34 degrees, or Co-secant of 124 degrees.																
Minutes	0°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Seconds		
0	10.081426	081433	081440	081447	081454	081461	081468	081475	081483	081490	081497	081504	59	1		
1	10.081511	081518	081525	081532	081539	081547	081554	081561	081568	081575	081582	081589	58	2		
2	10.081596	081603	081610	081618	081625	081632	081639	081646	081653	081660	081667	081674	57	3		
3	10.081682	081689	081696	081703	081710	081717	081724	081731	081739	081746	081753	081760	56	4		
4	10.081767	081774	081781	081788	081795	081803	081810	081817	081824	081831	081838	081845	55	1		
5	10.081852	081860	081867	081874	081881	081888	081895	081902	081909	081917	081924	081931	54	2		
6	10.081938	081945	081952	081959	081966	081974	081981	081988	081995	082002	082009	082016	53	3		
7	10.082024	082031	082038	082045	082052	082059	082066	082073	082081	082088	082095	082102	52	4		
8	10.082109	082116	082123	082131	082138	082145	082152	082159	082166	082173	082181	082188	51	1		
9	10.082195	082202	082209	082216	082223	082231	082238	082245	082252	082259	082266	082273	50	2		
10	10.082281	082288	082295	082302	082309	082316	082323	082331	082338	082345	082352	082359	49	3		
11	10.082366	082373	082381	082388	082395	082402	082409	082416	082424	082431	082438	082445	48	4		
12	10.082452	082459	082466	082474	082481	082488	082495	082502	082509	082517	082524	082531	47	1		
13	10.082538	082545	082552	082559	082567	082574	082581	082588	082595	082602	082610	082617	46	2		
14	10.082624	082631	082638	082645	082653	082660	082667	082674	082681	082688	082696	082703	45	3		
15	10.082710	082717	082724	082731	082739	082746	082753	082760	082767	082774	082782	082789	44	4		
16	10.082796	082803	082810	082817	082825	082832	082839	082846	082853	082861	082868	082875	43	1		
17	10.082882	082889	082896	082904	082911	082918	082925	082932	082940	082947	082954	082961	42	2		
18	10.082968	082975	082983	082990	082997	083004	083011	083019	083026	083033	083040	083047	41	3		
19	10.083054	083062	083069	083076	083083	083090	083098	083105	083112	083119	083126	083133	40	4		
20	10.083141	083148	083155	083162	083169	083177	083184	083191	083198	083205	083213	083220	39	1		
21	10.083227	083234	083241	083249	083256	083263	083270	083277	083285	083292	083299	083306	38	2		
22	10.083313	083321	083328	083335	083342	083349	083357	083364	083371	083378	083385	083393	37	3		
23	10.083400	083407	083414	083421	083429	083436	083443	083450	083457	083465	083472	083479	36	4		
24	10.083486	083493	083501	083508	083515	083522	083530	083537	083544	083551	083558	083566	35	1		
25	10.083573	083580	083587	083594	083602	083609	083616	083623	083631	083638	083645	083652	34	2		
26	10.083659	083667	083674	083681	083688	083695	083703	083710	083717	083724	083732	083739	33	3		
27	10.083746	083753	083760	083768	083775	083782	083789	083797	083804	083811	083818	083825	32	4		
28	10.083833	083840	083847	083854	083862	083869	083876	083883	083891	083898	083905	083912	31	1		
29	10.083919	083927	083934	083941	083948	083956	083963	083970	083977	083985	083992	083999	30	2		
30	10.084006	084013	084021	084028	084035	084042	084050	084057	084064	084071	084079	084086	29	3		
31	10.084093	084100	084108	084115	084122	084129	084137	084144	084151	084158	084166	084173	28	4		
32	10.084180	084187	084194	084202	084209	084216	084223	084231	084238	084245	084252	084260	27	1		
33	10.084267	084274	084281	084289	084296	084303	084310	084318	084325	084332	084339	084347	26	2		
34	10.084354	084361	084368	084376	084383	084390	084397	084405	084412	084419	084427	084434	25	3		
35	10.084441	084448	084456	084463	084470	084477	084485	084492	084499	084506	084514	084521	24	4		
36	10.084528	084535	084543	084550	084557	084564	084572	084579	084586	084594	084601	084608	23	1		
37	10.084615	084623	084630	084637	084644	084652	084659	084666	084673	084681	084688	084695	22	2		
38	10.084703	084710	084717	084724	084732	084739	084746	084753	084761	084768	084775	084783	21	3		
39	10.084790	084797	084804	084812	084819	084826	084834	084841	084848	084855	084863	084870	20	4		
40	10.084877	084884	084892	084899	084906	084914	084921	084928	084935	084943	084950	084957	19	1		
41	10.084965	084972	084979	084986	084994	085001	085008	085016	085023	085030	085037	085045	18	2		
42	10.085052	085059	085067	085074	085081	085088	085096	085103	085110	085118	085125	085132	17	3		
43	10.085140	085147	085154	085161	085169	085176	085183	085191	085198	085205	085213	085220	16	4		
44	10.085227	085234	085242	085249	085256	085264	085271	085278	085285	085293	085300	085307	15	1		
45	10.085315	085322	085329	085337	085344	085351	085359	085366	085373	085380	085388	085395	14	2		
46	10.085402	085410	085417	085424	085432	085439	085446	085454	085461	085468	085475	085483	13	3		
47	10.085490	085497	085505	085512	085519	085527	085534	085541	085549	085556	085563	085571	12	4		
48	10.085578	085585	085593	085600	085607	085614	085622	085629	085636	085644	085651	085658	11	1		
49	10.085666	085673	085680	085688	085695	085702	085710	085717	085724	085732	085739	085746	10	2		
50	10.085754	085761	085768	085776	085783	085790	085798	085805	085812	085820	085827	085834	9	3		
51	10.085842	085849	085856	085864	085871	085878	085886	085893	085900	085908	085915	085922	8	4		
52	10.085930	085937	085944	085952	085959	085966	085974	085981	085988	085996	086003	086010	7	1		
53	10.086018	086025	086032	086040	086047	086054	086062	086069	086076	086084	086091	086098	6	2		
54	10.086106	086113	086120	086128	086135	086142	086150	086157	086164	086172	086179	086186	5	3		
55	10.086194	086201	086209	086216	086223	086231	086238	086245	086253	086260	086267	086275	4	4		
56	10.086282	086289	086297	086304	086311	086319	086326	086334	086341	086348	086356	086363	3	1		
57	10.086370	086378	086385	086392	086400	086407	086414	086422	086429	086437	086444	086451	2	2		
58	10.086459	086466	086473	086481	086488	086495	086503	086510	086518	086525	086532	086540	1	3		
59	10.086547	086554	086562	086569	086576	086584	086591	086599	086606	086613	086621	086628	0	4		
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'																
Co-secant of 55 degrees, or Secant of 145 degrees.																
Minutes															Minutes	Seconds

LOGARITHMIC SECANTS.

Secant of 35 degrees, or Co-secant of 125 degrees.												Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
6635	086643	086650	086658	086665	086672	086680	086687	086694	086702	086709	086717	59	1 = 1
6724	086731	086739	086746	086753	086761	086768	086776	086783	086790	086798	086805	58	2. 3
6812	086820	086827	086835	086842	086849	086857	086864	086872	086879	086886	086894	57	3. 4
6901	086908	086916	086923	086931	086938	086945	086953	086960	086968	086975	086982	56	4. 6
6990	086997	087004	087012	087019	087027	087034	087041	087049	087056	087064	087071	55	1 = 1
7078	087086	087093	087101	087108	087115	087123	087130	087138	087145	087152	087160	54	2. 3
7167	087175	087182	087189	087197	087204	087212	087219	087226	087234	087241	087249	53	3. 4
7256	087263	087271	087278	087286	087293	087300	087308	087315	087323	087330	087337	52	4. 6
7345	087352	087360	087367	087374	087382	087389	087397	087404	087412	087419	087426	51	1 = 1
7434	087441	087449	087456	087463	087471	087478	087486	087493	087501	087508	087515	50	2. 3
7523	087530	087538	087545	087552	087560	087567	087575	087582	087590	087597	087604	49	3. 4
7612	087619	087627	087634	087641	087649	087656	087664	087671	087679	087686	087693	48	4. 6
7701	087708	087716	087723	087731	087738	087745	087753	087760	087768	087775	087783	47	1 = 1
7790	087797	087805	087812	087820	087827	087835	087842	087849	087857	087864	087872	46	2. 3
7879	087887	087894	087902	087909	087916	087924	087931	087939	087946	087954	087961	45	3. 4
7968	087976	087983	087991	087998	088006	088013	088021	088028	088035	088043	088050	44	4. 6
8057	088065	088073	088080	088088	088095	088102	088110	088117	088125	088132	088140	43	1 = 1
8147	088155	088162	088169	088177	088184	088192	088199	088207	088214	088222	088229	42	2. 3
8237	088244	088251	088259	088266	088274	088281	088289	088296	088304	088311	088319	41	3. 4
8326	088334	088341	088348	088356	088363	088371	088378	088386	088393	088401	088408	40	4. 6
8416	088423	088431	088438	088445	088453	088460	088468	088475	088483	088490	088498	39	1 = 2
8505	088513	088520	088528	088535	088543	088550	088557	088565	088572	088580	088587	38	2. 3
8595	088602	088610	088617	088625	088632	088640	088647	088655	088662	088670	088677	37	3. 5
8684	088692	088699	088707	088714	088722	088729	088737	088744	088752	088759	088767	36	4. 6
8774	088782	088789	088797	088804	088812	088819	088827	088834	088842	088849	088857	35	1 = 2
8864	088872	088879	088887	088894	088901	088909	088916	088924	088931	088939	088946	34	2. 3
8954	088961	088969	088976	088984	088991	088999	089006	089014	089021	089029	089036	33	3. 5
9044	089051	089059	089066	089074	089081	089089	089096	089104	089111	089119	089126	32	4. 6
9134	089141	089149	089156	089164	089171	089179	089186	089194	089201	089209	089216	31	1 = 2
9224	089231	089239	089246	089254	089261	089269	089276	089284	089291	089299	089306	30	2. 3
9314	089321	089329	089336	089344	089351	089359	089366	089374	089382	089389	089397	29	3. 5
9404	089412	089419	089427	089434	089442	089449	089457	089464	089472	089479	089487	28	4. 6
9494	089502	089509	089517	089524	089532	089539	089547	089554	089562	089569	089577	27	1 = 2
9584	089592	089600	089607	089615	089622	089630	089637	089645	089652	089660	089667	26	2. 3
9675	089682	089690	089697	089705	089712	089720	089728	089735	089743	089750	089758	25	3. 5
9765	089773	089780	089788	089795	089803	089810	089818	089825	089833	089841	089848	24	4. 6
9855	089863	089871	089878	089886	089893	089901	089908	089916	089923	089931	089938	23	1 = 2
9946	089954	089961	089969	089976	089984	089991	089999	090006	090014	090021	090029	22	2. 3
1037	090044	090052	090059	090067	090074	090082	090089	090097	090105	090112	090120	21	3. 5
1127	090135	090142	090150	090157	090165	090172	090180	090188	090195	090203	090210	20	4. 6
1218	090225	090233	090240	090248	090256	090263	090271	090278	090286	090293	090301	19	1 = 2
1308	090319	090324	090331	090339	090346	090354	090361	090369	090377	090384	090392	18	2. 3
1399	090404	090414	090422	090430	090437	090445	090452	090460	090467	090475	090482	17	3. 5
1490	090498	090505	090513	090520	090528	090535	090543	090551	090558	090566	090573	16	4. 6
1581	090588	090596	090604	090611	090619	090626	090634	090642	090649	090657	090664	15	1 = 2
1672	090679	090687	090695	090702	090710	090717	090725	090732	090740	090748	090755	14	2. 3
1763	090770	090778	090786	090793	090801	090808	090816	090823	090831	090839	090846	13	3. 5
1854	090861	090869	090877	090884	090892	090899	090907	090915	090922	090930	090937	12	4. 6
1945	090953	090960	090968	090975	090983	090990	090998	091006	091013	091021	091028	11	1 = 2
2036	091044	091051	091059	091066	091074	091082	091089	091097	091104	091112	091120	10	2. 3
2127	091135	091142	091150	091158	091165	091173	091180	091188	091196	091203	091211	9	3. 5
2219	091226	091234	091241	091249	091257	091264	091272	091279	091287	091295	091302	8	4. 6
2310	091317	091325	091333	091340	091348	091355	091363	091371	091378	091386	091394	7	1 = 2
2401	091409	091416	091424	091432	091439	091447	091455	091462	091470	091477	091485	6	2. 3
2493	091500	091508	091515	091523	091531	091538	091546	091554	091561	091569	091576	5	3. 5
2584	091592	091599	091607	091615	091622	091630	091637	091645	091653	091660	091668	4	4. 6
2676	091683	091691	091699	091706	091714	091721	091729	091737	091744	091752	091760	3	1 = 2
2767	091775	091782	091790	091798	091805	091813	091821	091828	091836	091844	091851	2	2. 3
2859	091866	091874	091882	091889	091897	091905	091912	091920	091928	091935	091943	1	3. 5
2951	091958	091966	091973	091981	091989	091996	092004	092012	092019	092027	092035	0	4. 6
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°		Minutes	Proport. parts.
Co-secant of 54 degrees, or Secant of 144 degrees.													

TABLE XXXV.

LOGARITHMIC SECANTS.

Secant of 36 degrees, or Co-secant of 126 degrees.												
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"
0	10.092042	092050	092058	092065	092073	092081	092088	092096	092104	092111	092119	092126
1	10.092134	092142	092149	092157	092165	092172	092180	092188	092195	092203	092211	092218
2	10.092236	092234	092241	092249	092257	092264	092272	092280	092287	092295	092303	092310
3	10.092318	092326	092333	092341	092349	092356	092364	092372	092379	092387	092395	092402
4	10.092410	092418	092425	092433	092441	092448	092456	092464	092471	092479	092487	092494
5	10.092502	092510	092517	092525	092533	092540	092548	092556	092563	092571	092579	092586
6	10.092594	092602	092609	092617	092625	092632	092640	092648	092655	092663	092671	092678
7	10.092680	092694	092702	092709	092717	092725	092732	092740	092748	092755	092763	092771
8	10.092778	092786	092794	092801	092809	092817	092825	092832	092840	092848	092855	092863
9	10.092871	092878	092886	092894	092901	092909	092917	092924	092932	092940	092948	092955
10	10.092963	092971	092978	092986	092994	093001	093009	093017	093025	093032	093040	093048
11	10.093055	093063	093071	093078	093086	093094	093102	093109	093117	093125	093132	093140
12	10.093148	093155	093163	093171	093178	093186	093194	093202	093209	093217	093225	093233
13	10.093240	093248	093256	093263	093271	093279	093287	093294	093302	093310	093317	093325
14	10.093333	093341	093348	093356	093364	093371	093379	093387	093395	093402	093410	093418
15	10.093425	093433	093441	093449	093456	093464	093472	093479	093487	093495	093503	093510
16	10.093518	093526	093534	093541	093549	093557	093564	093572	093580	093588	093595	093603
17	10.093611	093619	093626	093634	093642	093649	093657	093665	093673	093680	093688	093696
18	10.093704	093711	093719	093727	093734	093742	093750	093758	093765	093773	093781	093789
19	10.093796	093804	093812	093820	093827	093835	093843	093851	093858	093866	093874	093882
20	10.093890	093897	093905	093912	093920	093928	093936	093943	093951	093959	093967	093974
21	10.093982	093990	093998	094005	094013	094021	094029	094036	094044	094052	094060	094067
22	10.094075	094083	094091	094098	094106	094114	094122	094130	094137	094145	094153	094161
23	10.094168	094176	094184	094192	094199	094207	094215	094223	094230	094238	094246	094254
24	10.094261	094269	094277	094285	094292	094300	094308	094316	094323	094331	094339	094347
25	10.094355	094363	094370	094378	094386	094393	094401	094409	094417	094424	094432	094440
26	10.094448	094456	094463	094471	094479	094487	094494	094502	094510	094518	094525	094533
27	10.094541	094549	094557	094564	094572	094580	094588	094595	094603	094611	094619	094627
28	10.094634	094642	094650	094658	094666	094673	094681	094689	094697	094704	094712	094720
29	10.094728	094736	094743	094751	094759	094767	094774	094782	094790	094798	094806	094813
30	10.094821	094829	094837	094845	094852	094860	094868	094876	094884	094891	094899	094907
31	10.094915	094923	094930	094938	094946	094954	094962	094969	094977	094985	094993	095001
32	10.095008	095016	095024	095032	095040	095047	095055	095063	095071	095079	095086	095094
33	10.095102	095110	095118	095125	095133	095141	095149	095157	095164	095172	095180	095188
34	10.095196	095203	095211	095219	095227	095235	095242	095250	095258	095266	095274	095282
35	10.095289	095297	095305	095313	095321	095328	095336	095344	095352	095360	095367	095375
36	10.095383	095391	095399	095407	095414	095423	095430	095438	095446	095454	095461	095469
37	10.095477	095485	095493	095500	095508	095516	095524	095532	095540	095547	095555	095563
38	10.095571	095579	095587	095594	095602	095610	095618	095626	095634	095641	095649	095657
39	10.095665	095673	095681	095688	095696	095704	095712	095720	095728	095735	095743	095751
40	10.095759	095767	095775	095782	095790	095798	095806	095814	095822	095829	095837	095845
41	10.095853	095861	095869	095876	095884	095892	095900	095908	095916	095924	095931	095939
42	10.095947	095955	095963	095971	095978	095986	095994	096002	096010	096018	096026	096033
43	10.096041	096049	096057	096065	096073	096081	096088	096096	096104	096112	096120	096128
44	10.096136	096143	096151	096159	096167	096175	096183	096191	096198	096206	096214	096222
45	10.096230	096238	096246	096253	096261	096269	096277	096285	096293	096301	096308	096316
46	10.096324	096332	096340	096348	096356	096364	096371	096379	096387	096395	096403	096411
47	10.096419	096426	096434	096442	096450	096458	096466	096474	096482	096490	096497	096505
48	10.096513	096521	096529	096537	096545	096553	096560	096568	096576	096584	096592	096600
49	10.096608	096616	096623	096631	096639	096647	096655	096663	096671	096679	096686	096694
50	10.096702	096710	096718	096726	096734	096742	096750	096757	096765	096773	096781	096789
51	10.096797	096805	096813	096821	096828	096836	096844	096852	096860	096868	096876	096884
52	10.096892	096900	096907	096915	096923	096931	096939	096947	096955	096963	096971	096979
53	10.096986	096994	097002	097010	097018	097026	097034	097042	097050	097057	097065	097073
54	10.097081	097089	097097	097105	097113	097121	097129	097137	097144	097152	097160	097168
55	10.097176	097184	097192	097200	097208	097216	097224	097231	097239	097247	097255	097263
56	10.097271	097279	097287	097295	097303	097311	097318	097326	097334	097342	097350	097358
57	10.097366	097374	097382	097390	097398	097406	097414	097421	097429	097437	097445	097453
58	10.097461	097469	097477	097485	097493	097501	097509	097517	097524	097532	097540	097548
59	10.097556	097564	097572	097580	097588	097596	097604	097612	097620	097628	097635	097643
	60	55	50	45	40	35	30	25	20	15	10	5
Minutes	Co-secant of 53 degrees, or Secant of 143 degrees.											

LOGARITHMIC SECANTS.

Secant of 37 degrees, or Co-secant of 127 degrees.											Minutes	Proportional parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
651	097659	097667	097675	097683	097691	097699	097707	097715	097723	097731	59	1" = 2
747	097754	097762	097770	097778	097786	097794	097802	097810	097818	097826	58	2. 3
842	097850	097858	097866	097874	097882	097890	097897	097905	097913	097921	57	3. 5
937	097945	097953	097961	097969	097977	097985	097993	098001	098009	098017	56	4. 6
033	098041	098048	098056	098064	098072	098080	098088	098096	098104	098112	55	1 = 2
128	098136	098144	098152	098160	098168	098176	098184	098192	098200	098208	54	2. 3
224	098232	098239	098247	098255	098263	098271	098279	098287	098295	098303	53	3. 5
319	098327	098335	098343	098351	098359	098367	098375	098383	098391	098399	52	4. 6
415	098423	098431	098439	098447	098455	098463	098471	098479	098487	098494	51	1 = 2
510	098518	098526	098534	098542	098550	098558	098566	098574	098582	098590	50	2. 3
606	098614	098622	098630	098638	098646	098654	098662	098670	098678	098686	49	3. 5
702	098710	098718	098726	098734	098742	098750	098758	098766	098774	098782	48	4. 6
798	098806	098814	098822	098830	098838	098846	098854	098862	098870	098878	47	1 = 2
894	098902	098910	098918	098926	098934	098942	098950	098958	098966	098974	46	2. 3
990	098998	099006	099014	099022	099030	099038	099046	099054	099062	099070	45	3. 5
086	099094	099102	099110	099118	099126	099134	099142	099150	099158	099166	44	4. 6
182	099190	099198	099206	099214	099222	099230	099238	099246	099254	099262	43	1 = 2
278	099286	099294	099302	099310	099318	099326	099334	099342	099350	099358	42	2. 3
374	099382	099390	099398	099406	099414	099422	099430	099438	099446	099454	41	3. 5
471	099479	099487	099495	099503	099511	099519	099527	099535	099543	099551	40	4. 6
567	099575	099583	099591	099599	099607	099615	099623	099631	099639	099647	39	1 = 2
663	099671	099679	099687	099695	099703	099711	099719	099728	099736	099744	38	2. 3
760	099768	099776	099784	099792	099800	099808	099816	099824	099832	099840	37	3. 5
856	099864	099872	099880	099888	099896	099904	099912	099920	099928	099936	36	4. 6
953	099961	099969	099977	099985	099993	100001	100009	100017	100025	100033	35	1 = 2
049	100057	100065	100074	100082	100090	100098	100106	100114	100122	100130	34	2. 3
146	100154	100162	100170	100178	100186	100194	100202	100210	100219	100227	33	3. 5
243	100251	100259	100267	100275	100283	100291	100299	100307	100315	100323	32	4. 6
340	100348	100356	100364	100372	100380	100388	100396	100404	100412	100420	31	1 = 2
436	100444	100453	100461	100469	100477	100485	100493	100501	100509	100517	30	2. 3
533	100541	100549	100558	100566	100574	100582	100590	100598	100606	100614	29	3. 5
630	100638	100646	100655	100663	100671	100679	100687	100695	100703	100711	28	4. 6
727	100735	100743	100752	100760	100768	100776	100784	100792	100800	100808	27	1 = 2
824	100832	100841	100849	100857	100865	100873	100881	100889	100897	100905	26	2. 3
922	100930	100938	100946	100954	100962	100970	100978	100986	100994	101002	25	3. 5
019	101027	101035	101043	101051	101059	101067	101075	101084	101092	101100	24	4. 6
116	101124	101132	101140	101148	101157	101165	101173	101181	101189	101197	23	1 = 2
213	101221	101230	101238	101246	101254	101262	101270	101278	101286	101294	22	2. 3
311	101319	101327	101335	101343	101351	101359	101367	101376	101384	101392	21	3. 5
408	101416	101424	101432	101441	101449	101457	101465	101473	101481	101489	20	4. 7
506	101514	101522	101530	101538	101546	101554	101563	101571	101579	101587	19	1 = 2
603	101611	101619	101628	101636	101644	101652	101660	101668	101676	101684	18	2. 3
701	101709	101717	101725	101733	101741	101750	101758	101766	101774	101782	17	3. 5
798	101807	101815	101823	101831	101839	101847	101855	101864	101872	101880	16	4. 7
896	101904	101912	101921	101929	101937	101945	101953	101961	101969	101978	15	1 = 2
994	102002	102010	102018	102027	102035	102043	102051	102059	102067	102075	14	2. 3
092	102100	102108	102116	102124	102133	102141	102149	102157	102165	102173	13	3. 5
190	102198	102206	102214	102222	102230	102239	102247	102255	102263	102271	12	4. 7
288	102296	102304	102312	102320	102328	102337	102345	102353	102361	102369	11	1 = 2
386	102394	102402	102410	102418	102427	102435	102443	102451	102459	102467	10	2. 3
484	102492	102500	102508	102516	102525	102533	102541	102549	102557	102566	9	3. 5
582	102590	102598	102606	102615	102623	102631	102639	102647	102656	102664	8	4. 7
680	102688	102696	102705	102713	102721	102729	102737	102746	102754	102762	7	1 = 2
778	102787	102795	102803	102811	102819	102828	102836	102844	102852	102860	6	2. 3
877	102885	102893	102901	102909	102918	102926	102934	102942	102950	102959	5	3. 5
975	102983	102991	103000	103008	103016	103024	103032	103041	103049	103057	4	4. 7
073	103082	103090	103098	103106	103115	103123	103131	103139	103147	103156	3	1 = 2
172	103180	103188	103197	103205	103213	103221	103229	103238	103246	103254	2	2. 3
271	103279	103287	103295	103303	103312	103320	103328	103336	103344	103353	1	3. 5
369	103377	103386	103394	103402	103410	103418	103427	103435	103443	103451	0	4. 7
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proportional parts.
Co-secant of 52 degrees, or Secant of 142 degrees.											Minutes	Proportional parts.

LOGARITHMIC SECANTS.

Secant of 38 degrees, or Co-secant of 128 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		Minutes
0	10. 103468	103476	103484	103492	103501	103509	103517	103525	103534	103542	103550	103558	59	1
1	10. 103567	103575	103583	103591	103599	103608	103616	103624	103632	103641	103649	103657	58	2
2	10. 103665	103674	103682	103690	103698	103707	103715	103723	103731	103739	103748	103756	57	3
3	10. 103764	103772	103781	103789	103797	103805	103814	103822	103830	103838	103847	103855	56	4
4	10. 103863	103871	103880	103888	103896	103904	103913	103921	103929	103937	103946	103954	55	5
5	10. 103962	103970	103979	103987	103995	104003	104012	104020	104028	104036	104045	104053	54	6
6	10. 104061	104069	104078	104086	104094	104102	104111	104119	104127	104135	104144	104152	53	7
7	10. 104160	104168	104177	104185	104193	104201	104210	104218	104226	104235	104243	104251	52	8
8	10. 104259	104268	104276	104284	104292	104301	104309	104317	104325	104334	104342	104350	51	9
9	10. 104359	104367	104375	104383	104392	104400	104408	104416	104425	104433	104441	104450	50	10
10	10. 104458	104466	104474	104483	104491	104499	104507	104516	104524	104532	104541	104549	49	11
11	10. 104557	104565	104574	104582	104590	104599	104607	104615	104623	104632	104640	104648	48	12
12	10. 104656	104665	104673	104681	104690	104698	104706	104714	104723	104731	104739	104748	47	1
13	10. 104756	104764	104773	104781	104789	104797	104806	104814	104822	104831	104839	104847	46	2
14	10. 104855	104864	104872	104880	104889	104897	104905	104913	104922	104930	104938	104947	45	3
15	10. 104955	104963	104972	104980	104988	104996	105005	105013	105021	105030	105038	105046	44	4
16	10. 105055	105063	105071	105080	105088	105096	105104	105113	105121	105129	105138	105146	43	5
17	10. 105154	105163	105171	105179	105188	105196	105204	105212	105221	105229	105237	105246	42	6
18	10. 105254	105262	105271	105279	105287	105296	105304	105312	105321	105329	105337	105346	41	7
19	10. 105354	105362	105370	105379	105387	105395	105404	105412	105420	105429	105437	105445	40	8
20	10. 105454	105462	105470	105479	105487	105495	105504	105512	105520	105529	105537	105545	39	9
21	10. 105554	105562	105570	105579	105587	105595	105604	105612	105620	105629	105637	105645	38	10
22	10. 105654	105662	105670	105679	105687	105695	105704	105712	105720	105729	105737	105745	37	11
23	10. 105754	105762	105770	105779	105787	105795	105804	105812	105820	105829	105837	105845	36	12
24	10. 105854	105862	105871	105879	105887	105895	105904	105912	105921	105929	105937	105946	35	1
25	10. 105954	105962	105971	105979	105987	105996	106004	106012	106021	106029	106037	106046	34	2
26	10. 106054	106062	106071	106079	106088	106096	106104	106113	106121	106129	106138	106146	33	3
27	10. 106154	106163	106171	106179	106188	106196	106205	106213	106221	106230	106238	106246	32	4
28	10. 106255	106263	106271	106280	106288	106297	106305	106313	106321	106330	106338	106347	31	5
29	10. 106355	106363	106372	106380	106389	106397	106405	106414	106422	106430	106439	106447	30	6
30	10. 106456	106464	106472	106481	106489	106497	106506	106514	106523	106531	106539	106548	29	7
31	10. 106556	106564	106573	106581	106590	106598	106606	106615	106623	106632	106640	106648	28	8
32	10. 106657	106665	106673	106682	106690	106699	106707	106715	106724	106732	106741	106749	27	9
33	10. 106757	106766	106774	106782	106791	106799	106808	106816	106824	106833	106841	106850	26	10
34	10. 106858	106866	106875	106883	106892	106900	106908	106917	106925	106934	106942	106950	25	11
35	10. 106959	106967	106976	106984	106992	107001	107009	107018	107026	107034	107043	107051	24	12
36	10. 107060	107068	107076	107085	107093	107102	107110	107118	107127	107135	107144	107152	23	1
37	10. 107161	107169	107177	107186	107194	107203	107211	107219	107228	107236	107245	107253	22	2
38	10. 107262	107270	107278	107287	107295	107303	107312	107320	107329	107337	107346	107354	21	3
39	10. 107363	107371	107379	107388	107396	107405	107413	107421	107430	107438	107447	107455	20	4
40	10. 107464	107472	107480	107489	107497	107506	107514	107522	107531	107539	107548	107556	19	5
41	10. 107565	107573	107581	107590	107598	107607	107615	107624	107632	107640	107649	107657	18	6
42	10. 107666	107674	107683	107691	107700	107708	107716	107725	107733	107742	107750	107759	17	7
43	10. 107767	107775	107784	107792	107801	107809	107818	107826	107835	107843	107851	107860	16	8
44	10. 107868	107877	107885	107894	107902	107911	107919	107927	107936	107944	107953	107961	15	9
45	10. 107970	107978	107987	107995	108003	108012	108020	108029	108037	108046	108054	108063	14	10
46	10. 108071	108080	108088	108096	108105	108113	108122	108130	108139	108147	108156	108164	13	11
47	10. 108173	108181	108189	108198	108206	108215	108223	108232	108240	108249	108257	108266	12	12
48	10. 108274	108283	108291	108300	108308	108316	108325	108333	108342	108350	108359	108367	11	1
49	10. 108376	108384	108393	108401	108410	108418	108427	108435	108443	108452	108460	108469	10	2
50	10. 108477	108486	108494	108503	108511	108520	108528	108537	108545	108554	108562	108571	9	3
51	10. 108579	108588	108596	108605	108613	108622	108630	108638	108647	108655	108664	108672	8	4
52	10. 108681	108689	108698	108706	108715	108723	108732	108740	108749	108757	108766	108774	7	5
53	10. 108783	108791	108800	108808	108817	108825	108834	108842	108851	108859	108868	108876	6	6
54	10. 108885	108893	108902	108910	108919	108927	108936	108944	108953	108961	108970	108978	5	7
55	10. 108987	108995	109004	109012	109021	109029	109038	109046	109055	109063	109072	109080	4	8
56	10. 109089	109097	109106	109114	109123	109131	109140	109148	109157	109165	109174	109182	3	9
57	10. 109191	109199	109208	109216	109225	109233	109242	109250	109259	109267	109276	109284	2	10
58	10. 109293	109301	109310	109318	109327	109335	109344	109352	109361	109370	109378	109387	1	11
59	10. 109395	109404	109412	109421	109429	109438	109446	109455	109463	109472	109480	109489	0	12
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'														
Co-secant of 51 degrees, or Secant of 141 degrees.														

LOGARITHMIC SECANTS.

Secant of 39 degrees, or Co-secant of 129 degrees.												Minutes	Proport. parts
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
10. 109497	109506	109514	109523	109531	109540	109549	109557	109566	109574	109583	109591	59	1" = 2
10. 109600	109608	109617	109625	109634	109642	109651	109659	109668	109676	109685	109694	58	2. 3
10. 109702	109711	109719	109728	109736	109745	109753	109762	109770	109779	109787	109796	57	3. 5
10. 109805	109813	109822	109830	109839	109847	109856	109864	109873	109881	109890	109899	56	4. 7
10. 109907	109916	109924	109933	109941	109950	109958	109967	109975	109984	109993	110001	55	1 = 2
10. 110010	110018	110027	110035	110044	110052	110061	110069	110078	110087	110095	110104	54	2. 3
10. 110112	110121	110129	110138	110146	110155	110164	110172	110181	110189	110198	110206	53	3. 5
10. 110215	110224	110232	110241	110249	110258	110266	110275	110283	110292	110301	110309	52	4. 7
10. 110318	110326	110335	110343	110352	110361	110369	110378	110386	110395	110403	110412	51	1 = 2
10. 110421	110429	110438	110446	110455	110463	110472	110481	110489	110498	110506	110515	50	2. 3
10. 110523	110532	110541	110549	110558	110566	110575	110583	110592	110601	110609	110618	49	3. 5
10. 110626	110635	110644	110652	110661	110669	110678	110686	110695	110704	110712	110721	48	4. 7
10. 110729	110738	110747	110755	110764	110772	110781	110789	110798	110807	110815	110824	47	1 = 2
10. 110832	110841	110850	110858	110867	110875	110884	110893	110901	110910	110918	110927	46	2. 3
10. 110936	110944	110953	110961	110970	110979	110987	110996	111004	111013	111022	111030	45	3. 5
10. 111039	111047	111056	111065	111073	111082	111090	111099	111108	111116	111125	111133	44	4. 7
10. 111142	111151	111159	111168	111176	111185	111194	111202	111211	111219	111228	111237	43	1 = 2
10. 111245	111254	111263	111271	111280	111288	111297	111306	111314	111323	111331	111340	42	2. 3
10. 111349	111357	111366	111375	111383	111392	111400	111409	111418	111426	111435	111443	41	3. 5
10. 111452	111461	111469	111478	111487	111495	111504	111512	111521	111530	111538	111547	40	4. 7
10. 111556	111564	111573	111581	111590	111599	111607	111616	111625	111633	111642	111651	39	1 = 2
10. 111659	111668	111676	111685	111694	111702	111711	111720	111728	111737	111745	111754	38	2. 3
10. 111763	111771	111780	111789	111797	111806	111815	111823	111832	111841	111849	111858	37	3. 5
10. 111866	111875	111884	111892	111901	111910	111918	111927	111936	111944	111953	111962	36	4. 7
10. 111970	111979	111987	111996	120005	120013	120022	120031	120039	120048	120057	120065	35	1 = 2
10. 112074	120083	120091	120100	120109	120117	120126	120135	120143	120152	120161	120169	34	2. 3
10. 112178	120186	120195	120204	120212	120221	120230	120238	120247	120256	120264	120273	33	3. 5
10. 112282	120290	120299	120308	120316	120325	120334	120342	120351	120360	120368	120377	32	4. 7
10. 112386	120394	120403	120412	120420	120429	120438	120446	120455	120464	120472	120481	31	1 = 2
10. 112490	120498	120507	120516	120524	120533	120542	120551	120559	120568	120577	120585	30	2. 3
10. 112594	120603	120611	120620	120629	120637	120646	120655	120663	120672	120681	120689	29	3. 5
10. 112698	120707	120715	120724	120733	120741	120750	120759	120768	120776	120785	120794	28	4. 7
10. 112802	120811	120820	120828	120837	120846	120854	120863	120872	120881	120889	120898	27	1 = 2
10. 112907	120915	120924	120933	120941	120950	120959	120967	120976	120985	120994	121002	26	2. 3
10. 113011	121020	121028	121037	121046	121054	121063	121072	121081	121089	121098	121107	25	3. 5
10. 113115	121124	121133	121141	121150	121159	121168	121176	121185	121194	121202	121211	24	4. 7
10. 113220	121229	121237	121246	121255	121263	121272	121281	121290	121298	121307	121316	23	1 = 2
10. 113324	121333	121342	121351	121359	121368	121377	121385	121394	121403	121412	121420	22	2. 3
10. 113429	121438	121446	121455	121464	121473	121481	121490	121499	121507	121516	121525	21	3. 5
10. 113534	121542	121551	121560	121569	121577	121586	121595	121603	121612	121621	121630	20	4. 7
10. 113638	121647	121656	121665	121673	121682	121691	121700	121708	121717	121726	121734	19	1 = 2
10. 113743	121752	121761	121769	121778	121787	121796	121804	121813	121822	121831	121839	18	2. 4
10. 113848	121857	121866	121874	121883	121892	121900	121909	121918	121927	121935	121944	17	3. 5
10. 113953	121962	121970	121979	121988	121997	122005	122014	122023	122032	122040	122049	16	4. 7
10. 114058	122067	122075	122084	122093	122102	122110	122119	122128	122137	122145	122154	15	1 = 2
10. 114163	122172	122180	122189	122198	122207	122215	122224	122233	122242	122251	122259	14	2. 4
10. 114268	122277	122286	122294	122303	122312	122321	122329	122338	122347	122356	122364	13	3. 5
10. 114373	122382	122391	122400	122408	122417	122426	122435	122443	122452	122461	122470	12	4. 7
10. 114478	122487	122496	122505	122514	122522	122531	122540	122549	122557	122566	122575	11	1 = 2
10. 114584	122592	122601	122609	122618	122627	122636	122645	122654	122663	122672	122680	10	2. 4
10. 114689	122697	122706	122715	122724	122732	122741	122750	122759	122768	122777	122786	9	3. 5
10. 114794	122803	122812	122821	122830	122838	122847	122856	122865	122874	122883	122891	8	4. 7
10. 114900	122907	122916	122925	122934	122943	122952	122961	122970	122979	122988	122997	7	1 = 2
10. 115005	123011	123020	123029	123038	123047	123056	123065	123074	123083	123092	123101	6	2. 4
10. 115111	123115	123124	123133	123142	123151	123160	123169	123178	123187	123196	123205	5	3. 5
10. 115217	123219	123228	123237	123246	123255	123264	123273	123282	123291	123300	123309	4	4. 7
10. 115322	123323	123332	123341	123350	123359	123368	123377	123386	123395	123404	123413	3	1 = 2
10. 115428	123427	123436	123445	123454	123463	123472	123481	123490	123499	123508	123517	2	2. 4
10. 115534	123531	123540	123549	123558	123567	123576	123585	123594	123603	123612	123621	1	3. 5
10. 115640	123635	123644	123653	123662	123671	123680	123689	123698	123707	123716	123725	0	4. 7
60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts
Co-secant of 50 degrees, or Secant of 140 degrees.												Minutes	Proport. parts

LOGARITHMIC SECANTS.

Minutes		Secant of 40 degrees, or Co-secant of 130 degrees.											
		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	10.	115746	115755	115764	115772	115781	115790	115799	115808	115817	115826	115834	115841
1	10.	115852	115861	115870	115879	115887	115896	115905	115914	115923	115932	115940	115947
2	10.	115958	115967	115976	115985	115993	116002	116011	116020	116029	116038	116047	116055
3	10.	116064	116073	116082	116091	116100	116109	116117	116126	116135	116144	116153	116161
4	10.	116171	116179	116188	116197	116206	116215	116224	116232	116241	116250	116259	116267
5	10.	116277	116286	116295	116303	116312	116321	116330	116339	116348	116357	116365	116373
6	10.	116383	116392	116401	116410	116419	116427	116436	116445	116454	116463	116472	116480
7	10.	116490	116498	116507	116516	116525	116534	116543	116552	116561	116569	116578	116586
8	10.	116596	116605	116614	116623	116632	116640	116649	116658	116667	116676	116685	116693
9	10.	116703	116711	116720	116729	116738	116747	116756	116765	116774	116783	116791	116800
10	10.	116809	116818	116827	116836	116845	116854	116862	116871	116880	116889	116898	116906
11	10.	116916	116925	116934	116943	116951	116960	116969	116978	116987	116996	117005	117013
12	10.	117023	117031	117040	117049	117058	117067	117076	117085	117094	117103	117112	117120
13	10.	117129	117138	117147	117156	117165	117174	117183	117192	117201	117210	117218	117227
14	10.	117236	117245	117254	117263	117272	117281	117290	117299	117307	117316	117325	117333
15	10.	117343	117352	117361	117370	117379	117388	117397	117406	117414	117423	117432	117440
16	10.	117450	117459	117468	117477	117486	117495	117504	117513	117521	117530	117539	117547
17	10.	117557	117566	117575	117584	117593	117602	117611	117620	117629	117637	117646	117654
18	10.	117664	117673	117682	117691	117700	117709	117718	117727	117736	117745	117754	117762
19	10.	117771	117780	117789	117798	117807	117816	117825	117834	117843	117852	117861	117869
20	10.	117879	117888	117897	117905	117914	117923	117932	117941	117950	117959	117968	117976
21	10.	117986	117995	118004	118013	118022	118031	118040	118049	118057	118066	118075	118083
22	10.	118093	118102	118111	118120	118129	118138	118147	118156	118165	118174	118183	118191
23	10.	118201	118210	118219	118228	118237	118245	118254	118263	118272	118281	118290	118298
24	10.	118308	118317	118326	118335	118344	118353	118362	118371	118380	118389	118398	118406
25	10.	118416	118425	118434	118443	118452	118461	118470	118479	118488	118497	118505	118514
26	10.	118523	118532	118541	118550	118559	118568	118577	118586	118595	118604	118613	118621
27	10.	118631	118640	118649	118658	118667	118676	118685	118694	118703	118712	118721	118729
28	10.	118739	118748	118757	118766	118775	118784	118793	118802	118811	118820	118829	118837
29	10.	118847	118856	118865	118874	118883	118892	118901	118910	118918	118927	118936	118944
30	10.	118954	118963	118972	118981	118990	118999	119008	119017	119026	119035	119044	119052
31	10.	119062	119071	119080	119089	119098	119107	119116	119125	119134	119143	119152	119160
32	10.	119179	119188	119197	119206	119215	119224	119233	119242	119251	119260	119269	119277
33	10.	119287	119296	119305	119314	119323	119332	119341	119350	119359	119368	119377	119385
34	10.	119393	119402	119411	119420	119429	119438	119447	119456	119465	119474	119483	119491
35	10.	119499	119508	119517	119526	119535	119544	119553	119562	119571	119580	119589	119597
36	10.	119603	119612	119621	119630	119639	119648	119657	119666	119675	119684	119693	119701
37	10.	119711	119720	119729	119738	119747	119756	119765	119774	119783	119792	119801	119809
38	10.	119820	119829	119838	119847	119856	119865	119874	119883	119892	119901	119910	119918
39	10.	119927	119936	119945	119954	119963	119972	119981	119990	120000	120009	120018	120026
40	10.	120037	120046	120055	120064	120073	120082	120091	120100	120109	120118	120127	120135
41	10.	120145	120154	120163	120172	120181	120190	120199	120209	120218	120227	120236	120244
42	10.	120254	120263	120272	120281	120290	120299	120308	120317	120326	120335	120344	120352
43	10.	120362	120371	120380	120389	120398	120407	120416	120425	120434	120443	120452	120460
44	10.	120471	120480	120489	120498	120507	120516	120525	120534	120543	120552	120561	120569
45	10.	120580	120589	120598	120607	120616	120625	120634	120643	120652	120661	120670	120678
46	10.	120689	120698	120707	120716	120725	120734	120743	120752	120761	120770	120779	120787
47	10.	120798	120807	120816	120825	120834	120843	120852	120861	120870	120879	120888	120896
48	10.	120907	120916	120925	120934	120943	120952	120961	120970	120979	120988	120997	121005
49	10.	121016	121025	121034	121043	121052	121061	121070	121079	121088	121097	121106	121114
50	10.	121123	121132	121141	121150	121159	121168	121177	121186	121195	121204	121213	121221
51	10.	121234	121243	121252	121261	121270	121279	121288	121297	121306	121315	121324	121332
52	10.	121344	121353	121362	121371	121380	121389	121398	121407	121416	121425	121434	121442
53	10.	121453	121462	121471	121480	121489	121498	121507	121516	121525	121534	121543	121551
54	10.	121562	121571	121580	121589	121598	121607	121616	121625	121634	121643	121652	121660
55	10.	121672	121681	121690	121699	121708	121717	121726	121735	121744	121753	121762	121770
56	10.	121781	121790	121800	121809	121818	121827	121836	121845	121854	121863	121872	121880
57	10.	121891	121900	121909	121918	121927	121936	121945	121954	121963	121972	121981	121989
58	10.	122001	122010	122019	122028	122037	122046	122055	122064	122073	122082	122091	122100
59	10.	122110	122119	122128	122137	122146	122155	122164	122173	122182	122191	122200	122208
Minutes		60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'
		Co-secant of 49 degrees, or Secant of 139 degrees.											

LOGARITHMIC SECANTS.

Secant of 41 degrees, or Co-secant of 131 degrees.												Minutes	Proport. parts.
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
2220	122229	122238	122248	122257	122266	122275	122284	122293	122302	122312	122321	59	1" = 2
2330	122339	122348	122357	122367	122376	122385	122394	122403	122412	122422	122431	58	2. 4
2440	122449	122458	122467	122477	122486	122495	122504	122513	122522	122532	122541	57	3. 5
2550	122559	122568	122577	122587	122596	122605	122614	122623	122632	122642	122651	56	4. 7
2660	122669	122678	122687	122697	122706	122715	122724	122733	122742	122752	122761	55	1 = 2
2770	122779	122788	122798	122807	122816	122825	122834	122843	122853	122862	122871	54	2. 4
2880	122889	122899	122908	122917	122926	122935	122944	122954	122963	122972	122981	53	3. 6
2990	123000	123009	123018	123027	123036	123046	123055	123064	123073	123082	123092	52	4. 7
3101	123110	123119	123128	123137	123147	123156	123165	123174	123183	123193	123202	51	1 = 2
3211	123220	123229	123239	123248	123257	123266	123275	123285	123294	123303	123312	50	2. 4
3321	123331	123340	123349	123358	123368	123377	123386	123395	123404	123414	123423	49	3. 6
3432	123441	123450	123460	123469	123478	123487	123496	123506	123515	123524	123533	48	4. 7
3543	123552	123561	123570	123579	123589	123598	123607	123616	123626	123635	123644	47	1 = 2
3653	123662	123672	123681	123690	123699	123709	123718	123727	123736	123745	123755	46	2. 4
3764	123773	123782	123792	123801	123810	123819	123828	123838	123847	123856	123865	45	3. 6
3875	123884	123893	123902	123912	123921	123930	123939	123949	123958	123967	123976	44	4. 7
3985	123995	124004	124013	124022	124032	124041	124050	124059	124069	124078	124087	43	1 = 2
4096	124106	124115	124124	124133	124143	124152	124161	124170	124180	124189	124198	42	2. 4
4207	124217	124226	124235	124244	124254	124263	124272	124281	124291	124300	124309	41	3. 6
4318	124328	124337	124346	124355	124365	124374	124383	124392	124402	124411	124420	40	4. 7
4429	124439	124448	124457	124466	124476	124485	124494	124503	124513	124522	124531	39	1 = 2
4541	124550	124559	124568	124578	124587	124596	124605	124615	124624	124633	124642	38	2. 4
4652	124661	124670	124680	124689	124698	124707	124717	124726	124735	124744	124754	37	3. 6
4763	124772	124782	124791	124800	124809	124819	124828	124837	124847	124856	124865	36	4. 7
4874	124884	124893	124902	124912	124921	124930	124939	124949	124958	124967	124976	35	1 = 2
4985	124995	125004	125014	125023	125032	125042	125051	125060	125069	125079	125088	34	2. 4
5097	125107	125116	125125	125134	125144	125153	125162	125172	125181	125190	125199	33	3. 6
5209	125218	125227	125237	125246	125255	125265	125274	125283	125292	125302	125311	32	4. 7
5320	125330	125339	125348	125358	125367	125376	125386	125395	125404	125413	125423	31	1 = 2
5432	125441	125451	125460	125469	125479	125488	125497	125507	125516	125525	125534	30	2. 4
5544	125553	125562	125572	125581	125590	125600	125609	125618	125628	125637	125646	29	3. 6
5656	125665	125674	125684	125693	125702	125712	125721	125730	125740	125749	125758	28	4. 7
5767	125777	125786	125795	125805	125814	125823	125833	125842	125851	125861	125870	27	1 = 2
5879	125889	125898	125907	125917	125926	125935	125945	125954	125963	125973	125982	26	2. 4
5991	126001	126010	126019	126029	126038	126047	126057	126066	126075	126085	126094	25	3. 6
6103	126113	126122	126131	126141	126150	126160	126169	126178	126188	126197	126206	24	4. 7
6216	126225	126234	126244	126253	126262	126272	126281	126290	126300	126309	126318	23	1 = 2
6328	126337	126346	126356	126365	126375	126384	126393	126403	126412	126421	126431	22	2. 4
6440	126459	126468	126477	126487	126496	126506	126515	126524	126534	126543	126553	21	3. 6
6552	126562	126571	126580	126590	126599	126609	126618	126627	126637	126646	126655	20	4. 7
6665	126674	126684	126693	126702	126712	126721	126730	126740	126749	126758	126768	19	1 = 2
6777	126787	126796	126805	126815	126824	126833	126843	126852	126862	126871	126880	18	2. 4
6890	126899	126909	126918	126927	126937	126946	126955	126965	126974	126984	126993	17	3. 6
7002	127012	127021	127031	127040	127049	127059	127068	127077	127087	127096	127106	16	4. 8
7115	127124	127134	127143	127153	127162	127171	127181	127190	127200	127209	127218	15	1 = 2
7228	127237	127247	127256	127265	127275	127284	127294	127303	127312	127322	127331	14	2. 4
7341	127350	127359	127369	127378	127388	127397	127406	127416	127425	127435	127444	13	3. 6
7453	127463	127472	127482	127491	127500	127510	127519	127529	127538	127547	127557	12	4. 8
7566	127576	127585	127595	127604	127613	127623	127632	127642	127651	127660	127670	11	1 = 2
7679	127689	127698	127708	127717	127726	127736	127745	127755	127764	127773	127783	10	2. 4
7792	127802	127811	127821	127830	127839	127849	127858	127868	127877	127887	127896	9	3. 6
7905	127915	127924	127934	127943	127953	127962	127971	127981	127990	128000	128009	8	4. 8
8019	128028	128037	128047	128056	128066	128075	128085	128094	128104	128113	128122	7	1 = 2
8132	128141	128151	128160	128170	128179	128189	128198	128207	128217	128226	128236	6	2. 4
8245	128255	128264	128274	128283	128292	128302	128311	128321	128330	128340	128349	5	3. 6
8359	128368	128377	128387	128396	128406	128415	128425	128434	128444	128453	128463	4	4. 8
8472	128481	128491	128500	128510	128519	128529	128538	128548	128557	128567	128576	3	1 = 2
8586	128595	128604	128614	128623	128633	128642	128652	128661	128671	128680	128690	2	2. 4
8699	128709	128718	128728	128737	128746	128756	128765	128775	128784	128794	128803	1	3. 6
8813	128822	128832	128841	128851	128860	128870	128879	128889	128898	128908	128917	0	4. 8
40'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-secant of 48 degrees, or Secant of 138 degrees.													

LOGARITHMIC SECANTS.

Minutes	Secant of 42 degrees, or Co-secant of 132 degrees.												Minutes	Prop.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10.128926	128936	128945	128955	128964	128974	128983	128993	129002	129012	129021	129031	59	1 =
1	10.129040	129050	129059	129069	129078	129088	129097	129107	129116	129126	129135	129145	58	2 =
2	10.129154	129164	129173	129183	129192	129202	129211	129221	129230	129240	129249	129259	57	3 =
3	10.129268	129278	129287	129297	129306	129316	129325	129335	129344	129354	129363	129373	56	4 =
4	10.129382	129392	129401	129411	129420	129430	129439	129449	129458	129468	129477	129487	55	1 =
5	10.129496	129506	129515	129525	129534	129544	129553	129563	129572	129582	129591	129601	54	2 =
6	10.129610	129620	129629	129639	129648	129658	129667	129677	129686	129696	129705	129715	53	3 =
7	10.129724	129734	129743	129753	129762	129772	129781	129791	129801	129810	129820	129829	52	4 =
8	10.129839	129848	129858	129867	129877	129886	129896	129905	129915	129924	129934	129943	51	1 =
9	10.129953	129962	129972	129982	129991	130001	130010	130020	130029	130039	130048	130058	50	2 =
10	10.130077	130077	130086	130096	130105	130115	130125	130134	130144	130153	130163	130172	49	3 =
11	10.130182	130191	130201	130210	130220	130229	130239	130249	130258	130268	130277	130287	48	4 =
12	10.130296	130306	130315	130325	130334	130344	130354	130363	130373	130382	130392	130401	47	1 =
13	10.130411	130420	130430	130440	130449	130459	130468	130478	130487	130497	130506	130516	46	2 =
14	10.130526	130535	130545	130554	130564	130573	130583	130592	130602	130612	130621	130631	45	3 =
15	10.130640	130650	130659	130669	130678	130688	130698	130707	130717	130726	130736	130745	44	4 =
16	10.130755	130765	130774	130784	130793	130803	130812	130822	130832	130841	130851	130860	43	1 =
17	10.130870	130879	130889	130899	130908	130918	130927	130937	130946	130956	130966	130975	42	2 =
18	10.130985	130994	131004	131014	131023	131033	131043	131052	131062	131071	131081	131090	41	3 =
19	10.131100	131109	131119	131129	131138	131148	131157	131167	131176	131186	131196	131205	40	4 =
20	10.131215	131224	131234	131244	131253	131263	131272	131282	131292	131301	131311	131320	39	1 =
21	10.131330	131340	131349	131359	131368	131378	131388	131397	131407	131416	131426	131436	38	2 =
22	10.131445	131455	131464	131474	131484	131493	131503	131512	131522	131532	131541	131551	37	3 =
23	10.131560	131570	131580	131589	131599	131608	131618	131628	131637	131647	131656	131666	36	4 =
24	10.131676	131685	131695	131705	131714	131724	131733	131743	131753	131762	131772	131781	35	1 =
25	10.131791	131801	131810	131820	131830	131839	131849	131858	131868	131878	131887	131897	34	2 =
26	10.131907	131916	131926	131935	131945	131955	131964	131974	131984	131993	132003	132012	33	3 =
27	10.132022	132032	132041	132051	132061	132070	132080	132090	132099	132109	132118	132128	32	4 =
28	10.132138	132147	132157	132167	132176	132186	132195	132205	132215	132224	132234	132244	31	1 =
29	10.132253	132263	132273	132282	132292	132302	132311	132321	132330	132340	132350	132359	30	2 =
30	10.132369	132379	132388	132398	132408	132417	132427	132437	132446	132456	132466	132475	29	3 =
31	10.132485	132495	132504	132514	132523	132533	132543	132552	132562	132572	132581	132591	28	4 =
32	10.132601	132610	132620	132630	132639	132649	132659	132668	132678	132688	132697	132707	27	1 =
33	10.132717	132726	132736	132746	132755	132765	132775	132784	132794	132804	132813	132823	26	2 =
34	10.132833	132842	132852	132862	132871	132881	132891	132900	132910	132920	132929	132939	25	3 =
35	10.132949	132958	132968	132978	132987	132997	133007	133016	133026	133036	133045	133055	24	4 =
36	10.133065	133075	133084	133094	133104	133113	133123	133133	133142	133152	133162	133171	23	1 =
37	10.133181	133191	133200	133210	133220	133230	133239	133249	133259	133268	133278	133288	22	2 =
38	10.133297	133307	133317	133326	133336	133346	133355	133365	133375	133385	133394	133404	21	3 =
39	10.133414	133423	133433	133443	133452	133462	133472	133482	133491	133501	133511	133520	20	4 =
40	10.133530	133540	133549	133559	133569	133579	133588	133598	133608	133617	133627	133637	19	1 =
41	10.133647	133656	133666	133676	133685	133695	133705	133715	133724	133734	133744	133753	18	2 =
42	10.133763	133773	133783	133792	133802	133812	133821	133831	133841	133851	133860	133870	17	3 =
43	10.133880	133889	133899	133909	133919	133928	133938	133948	133957	133967	133977	133987	16	4 =
44	10.133996	134006	134016	134026	134035	134045	134055	134064	134074	134084	134094	134103	15	1 =
45	10.134113	134123	134133	134142	134152	134162	134172	134181	134191	134201	134210	134220	14	2 =
46	10.134230	134240	134249	134259	134269	134279	134288	134298	134308	134318	134327	134337	13	3 =
47	10.134347	134357	134366	134376	134386	134396	134405	134415	134425	134435	134444	134454	12	4 =
48	10.134464	134474	134483	134493	134503	134513	134522	134532	134542	134552	134561	134571	11	1 =
49	10.134581	134591	134600	134610	134620	134630	134639	134649	134659	134669	134678	134688	10	2 =
50	10.134698	134708	134717	134727	134737	134747	134756	134766	134776	134786	134795	134805	9	3 =
51	10.134815	134825	134835	134844	134854	134864	134874	134883	134893	134903	134913	134923	8	4 =
52	10.134932	134942	134952	134962	134971	134981	134991	135001	135010	135020	135030	135040	7	1 =
53	10.135050	135059	135069	135079	135089	135098	135108	135118	135128	135138	135147	135157	6	2 =
54	10.135167	135177	135186	135196	135206	135216	135226	135235	135245	135255	135265	135275	5	3 =
55	10.135284	135294	135304	135314	135323	135333	135343	135353	135363	135372	135382	135392	4	4 =
56	10.135402	135412	135421	135431	135441	135451	135461	135470	135480	135490	135500	135510	3	1 =
57	10.135519	135529	135539	135549	135559	135568	135578	135588	135598	135608	135617	135627	2	2 =
58	10.135637	135647	135657	135666	135676	135686	135696	135706	135715	135725	135735	135745	1	3 =
59	10.135755	135765	135774	135784	135794	135804	135814	135823	135833	135843	135853	135863	0	4 =
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	
Co-secant of 47 degrees, or Secant of 137 degrees.														

LOGARITHMIC SECANTS.

Secant of 43 degrees, or Co-secant of 133 degrees.													Minutes	Proport. parts.
1°	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
15872	135882	135892	135902	135912	135922	135931	135941	135951	135961	135971	135981	59	1" = 2	
15990	136000	136010	136020	136030	136039	136049	136059	136069	136079	136089	136098	58	2. 4	
16108	136118	136128	136138	136148	136157	136167	136177	136187	136197	136207	136216	57	3. 6	
16226	136236	136246	136256	136266	136275	136285	136295	136305	136315	136325	136334	56	4. 8	
16344	136354	136364	136374	136384	136393	136403	136413	136423	136433	136443	136453	55	1" = 2	
16462	136472	136482	136492	136502	136512	136521	136531	136541	136551	136561	136571	54	2. 4	
16581	136590	136600	136610	136620	136630	136640	136650	136659	136669	136679	136689	53	3. 6	
16699	136709	136719	136728	136738	136748	136758	136768	136778	136788	136797	136807	52	4. 8	
16817	136827	136837	136847	136857	136866	136876	136886	136896	136906	136916	136926	51	1" = 2	
16936	136945	136955	136965	136975	136985	136995	137005	137014	137024	137034	137044	50	2. 4	
17054	137064	137074	137084	137093	137103	137113	137123	137133	137143	137153	137163	49	3. 6	
17173	137182	137192	137202	137212	137222	137232	137242	137252	137261	137271	137281	48	4. 8	
17291	137301	137311	137321	137331	137341	137350	137360	137370	137380	137390	137400	47	1" = 2	
17410	137420	137430	137439	137449	137459	137469	137479	137489	137499	137509	137519	46	2. 4	
17529	137538	137548	137558	137568	137578	137588	137598	137608	137618	137628	137637	45	3. 6	
17647	137657	137667	137677	137687	137697	137707	137717	137727	137736	137746	137756	44	4. 8	
17766	137776	137786	137796	137806	137816	137826	137836	137845	137855	137865	137875	43	1" = 2	
17885	137895	137905	137915	137925	137935	137945	137955	137964	137974	137984	137994	42	2. 4	
18004	138014	138024	138034	138044	138054	138064	138074	138084	138093	138103	138113	41	3. 6	
18123	138133	138143	138153	138163	138173	138183	138193	138203	138213	138223	138232	40	4. 8	
18242	138252	138262	138272	138282	138292	138302	138312	138322	138332	138342	138352	39	1" = 2	
18361	138372	138382	138391	138401	138411	138421	138431	138441	138451	138461	138471	38	2. 4	
18480	138491	138501	138511	138521	138531	138541	138551	138560	138570	138580	138590	37	3. 6	
18600	138610	138620	138630	138640	138650	138660	138670	138680	138690	138700	138710	36	4. 8	
18720	138730	138740	138750	138760	138770	138780	138790	138800	138810	138820	138830	35	1" = 2	
18839	138849	138859	138869	138879	138889	138899	138909	138919	138929	138939	138949	34	2. 4	
18959	138969	138979	138989	138999	139009	139019	139029	139039	139048	139058	139068	33	3. 6	
19078	139088	139098	139108	139118	139128	139138	139148	139158	139168	139178	139188	32	4. 8	
19198	139208	139218	139228	139238	139248	139258	139268	139278	139288	139298	139308	31	1" = 2	
19318	139328	139338	139348	139358	139368	139378	139388	139398	139408	139418	139428	30	2. 4	
19438	139448	139458	139468	139478	139488	139498	139508	139518	139528	139538	139548	29	3. 6	
19558	139568	139578	139588	139598	139608	139618	139628	139638	139648	139658	139668	28	4. 8	
19678	139688	139698	139708	139718	139728	139738	139748	139758	139768	139778	139788	27	1" = 2	
19798	139808	139818	139828	139838	139848	139858	139868	139878	139888	139898	139908	26	2. 4	
19918	139928	139938	139948	139958	139968	139978	139988	139998	140008	140018	140028	25	3. 6	
20038	140048	140058	140068	140078	140088	140098	140108	140118	140128	140138	140148	24	4. 8	
20158	140168	140178	140188	140198	140208	140218	140228	140239	140249	140259	140269	23	1" = 2	
20279	140289	140299	140309	140319	140329	140339	140349	140359	140369	140379	140389	22	2. 4	
20399	140409	140419	140429	140439	140449	140459	140469	140479	140489	140499	140509	21	3. 6	
20520	140520	140530	140540	140550	140560	140570	140580	140590	140600	140610	140620	20	4. 8	
20640	140650	140660	140670	140680	140690	140700	140710	140720	140731	140741	140751	19	1" = 2	
20761	140771	140781	140791	140801	140811	140821	140831	140841	140851	140861	140871	18	2. 4	
20881	140891	140902	140912	140922	140932	140942	140952	140962	140972	140982	140992	17	3. 6	
21002	141012	141022	141032	141042	141052	141063	141073	141083	141093	141103	141113	16	4. 8	
21123	141133	141143	141153	141163	141173	141183	141193	141204	141214	141224	141234	15	1" = 2	
21244	141254	141264	141274	141284	141294	141304	141314	141325	141335	141345	141355	14	2. 4	
21365	141375	141385	141395	141405	141415	141425	141435	141446	141456	141466	141476	13	3. 6	
21486	141496	141506	141516	141526	141536	141546	141557	141567	141577	141587	141597	12	4. 8	
21607	141617	141627	141637	141647	141657	141668	141678	141688	141698	141708	141718	11	1" = 2	
21728	141738	141748	141758	141769	141779	141789	141799	141809	141819	141829	141839	10	2. 4	
21849	141860	141870	141880	141890	141900	141910	141920	141930	141940	141951	141961	9	3. 6	
21971	141981	141991	142001	142011	142021	142031	142042	142052	142062	142072	142082	8	4. 8	
22092	142102	142112	142123	142133	142143	142153	142163	142173	142183	142193	142203	7	1" = 2	
22214	142224	142234	142244	142254	142264	142274	142285	142295	142305	142315	142325	6	2. 4	
22335	142345	142355	142366	142376	142386	142396	142406	142416	142426	142436	142447	5	3. 6	
22457	142467	142477	142487	142497	142507	142518	142528	142538	142548	142558	142568	4	4. 8	
22578	142589	142599	142609	142619	142629	142639	142649	142660	142670	142680	142690	3	1" = 2	
22700	142710	142720	142731	142741	142751	142761	142771	142781	142792	142802	142812	2	2. 4	
22822	142832	142842	142852	142863	142873	142883	142893	142903	142913	142924	142934	1	3. 6	
22944	142954	142964	142974	142985	142995	143005	143015	143025	143035	143046	143056	0	4. 8	
1°	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes	Proport. parts.	
Co-secant of 46 degrees, or Secant of 136 degrees.														

LOGARITHMIC SECANTS.

Secant of 44 degrees, or Co-secant of 134 degrees.																
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Prop.		
0	10. 143066	143076	143086	143096	143107	143117	143127	143137	143147	143157	143168	143178	59	1 =		
1	10. 143188	143198	143208	143218	143229	143239	143249	143259	143269	143279	143290	143300	58	2 =		
2	10. 143310	143320	143330	143341	143351	143361	143371	143381	143391	143402	143412	143422	57	3 =		
3	10. 143432	143442	143453	143463	143473	143483	143493	143503	143514	143524	143534	143544	56	4 =		
4	10. 143554	143565	143575	143585	143595	143605	143616	143626	143636	143646	143656	143667	55	1 =		
5	10. 143677	143687	143697	143707	143718	143728	143738	143748	143758	143769	143779	143789	54	2 =		
6	10. 143799	143809	143820	143830	143840	143850	143860	143871	143881	143891	143901	143911	53	3 =		
7	10. 143922	143932	143942	143952	143962	143973	143983	143993	144003	144013	144024	144034	52	4 =		
8	10. 144044	144054	144065	144075	144085	144095	144105	144116	144126	144136	144146	144156	51	1 =		
9	10. 144167	144177	144187	144197	144208	144218	144228	144238	144248	144259	144269	144279	50	2 =		
10	10. 144289	144300	144310	144320	144330	144341	144351	144361	144371	144381	144392	144402	49	3 =		
11	10. 144412	144422	144433	144443	144453	144463	144474	144484	144494	144504	144514	144525	48	4 =		
12	10. 144535	144545	144555	144566	144576	144586	144596	144607	144617	144627	144637	144648	47	1 =		
13	10. 144658	144668	144678	144689	144699	144709	144719	144730	144740	144750	144760	144771	46	2 =		
14	10. 144781	144791	144801	144812	144822	144832	144842	144853	144863	144873	144883	144894	45	3 =		
15	10. 144904	144914	144924	144935	144945	144955	144965	144976	144986	144996	145006	145017	44	4 =		
16	10. 145027	145037	145047	145058	145068	145078	145089	145099	145109	145119	145130	145140	43	1 =		
17	10. 145150	145160	145171	145181	145191	145201	145212	145222	145232	145242	145253	145263	42	2 =		
18	10. 145273	145284	145294	145304	145314	145325	145335	145345	145356	145366	145376	145386	41	3 =		
19	10. 145396	145407	145417	145427	145438	145448	145458	145469	145479	145489	145499	145509	40	4 =		
20	10. 145520	145530	145541	145551	145561	145571	145582	145592	145602	145613	145623	145633	39	1 =		
21	10. 145644	145654	145664	145674	145685	145695	145705	145716	145726	145736	145746	145757	38	2 =		
22	10. 145767	145777	145788	145798	145808	145819	145829	145839	145849	145860	145870	145880	37	3 =		
23	10. 145891	145901	145911	145922	145932	145942	145952	145963	145973	145983	145994	146004	36	4 =		
24	10. 146014	146025	146035	146045	146056	146066	146076	146087	146097	146107	146117	146128	35	1 =		
25	10. 146138	146148	146159	146169	146179	146190	146200	146210	146221	146231	146241	146252	34	2 =		
26	10. 146262	146272	146283	146293	146303	146314	146324	146334	146344	146355	146365	146375	33	3 =		
27	10. 146386	146396	146406	146417	146427	146437	146448	146458	146468	146479	146489	146499	32	4 =		
28	10. 146510	146520	146530	146541	146551	146561	146572	146582	146592	146603	146613	146623	31	1 =		
29	10. 146634	146644	146654	146665	146675	146685	146696	146706	146717	146727	146737	146748	30	2 =		
30	10. 146758	146768	146779	146789	146799	146810	146820	146830	146841	146851	146861	146872	29	3 =		
31	10. 146882	146892	146903	146913	146923	146934	146944	146955	146965	146975	146986	146996	28	4 =		
32	10. 147006	147017	147027	147037	147048	147058	147068	147079	147089	147100	147110	147120	27	1 =		
33	10. 147131	147141	147151	147162	147172	147182	147193	147203	147214	147224	147234	147245	26	2 =		
34	10. 147255	147265	147276	147286	147297	147307	147317	147328	147338	147348	147359	147369	25	3 =		
35	10. 147380	147390	147400	147411	147421	147431	147442	147452	147463	147473	147483	147494	24	4 =		
36	10. 147504	147514	147525	147535	147546	147556	147566	147577	147587	147598	147608	147618	23	1 =		
37	10. 147629	147639	147649	147660	147670	147681	147691	147701	147712	147722	147733	147743	22	2 =		
38	10. 147753	147764	147774	147785	147795	147805	147816	147826	147837	147847	147857	147868	21	3 =		
39	10. 147878	147889	147899	147909	147920	147930	147941	147951	147961	147972	147982	147993	20	4 =		
40	10. 148003	148013	148024	148034	148045	148055	148065	148076	148086	148097	148107	148117	19	1 =		
41	10. 148128	148138	148149	148159	148170	148180	148190	148201	148211	148222	148232	148242	18	2 =		
42	10. 148253	148263	148274	148284	148295	148305	148315	148326	148336	148347	148357	148367	17	3 =		
43	10. 148378	148388	148399	148409	148420	148430	148440	148451	148461	148472	148482	148493	16	4 =		
44	10. 148503	148513	148524	148534	148545	148555	148566	148576	148586	148597	148607	148618	15	1 =		
45	10. 148628	148639	148649	148660	148670	148680	148691	148701	148712	148722	148733	148743	14	2 =		
46	10. 148753	148764	148774	148785	148795	148806	148816	148827	148837	148847	148858	148868	13	3 =		
47	10. 148879	148889	148900	148910	148921	148931	148942	148952	148962	148973	148983	148994	12	4 =		
48	10. 149004	149015	149025	149036	149046	149057	149067	149077	149088	149098	149109	149119	11	1 =		
49	10. 149130	149140	149151	149161	149172	149182	149193	149203	149213	149224	149234	149245	10	2 =		
50	10. 149255	149266	149276	149287	149297	149308	149318	149329	149339	149350	149360	149370	9	3 =		
51	10. 149381	149391	149402	149412	149423	149433	149444	149454	149465	149475	149486	149496	8	4 =		
52	10. 149507	149517	149528	149538	149549	149559	149570	149580	149590	149601	149611	149622	7	1 =		
53	10. 149632	149643	149653	149664	149674	149685	149695	149706	149716	149727	149737	149748	6	2 =		
54	10. 149758	149769	149779	149790	149800	149811	149821	149832	149842	149853	149863	149874	5	3 =		
55	10. 149884	149895	149905	149916	149926	149937	149947	149958	149968	149979	149989	150000	4	4 =		
56	10. 150010	150021	150031	150042	150052	150063	150073	150084	150094	150105	150115	150126	3	1 =		
57	10. 150136	150147	150157	150168	150178	150189	150199	150210	150220	150231	150241	150252	2	2 =		
58	10. 150262	150273	150283	150294	150304	150315	150326	150336	150347	150357	150368	150378	1	3 =		
59	10. 150389	150399	150410	150420	150431	150441	150452	150462	150473	150483	150494	150504	0	4 =		
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'																
Co-secant of 45 degrees, or Secant of 135 degrees.																
Minutes															Minutes	Prop.

LOGARITHMIC SECANTS,

Secant of 45 degrees, or Co-secant of 135 degrees.												Minutes	Proper parts
1°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
50515	150525	150536	150547	150557	150568	150578	150589	150599	150610	150620	150631	59	1" = 2
50641	150652	150662	150673	150683	150694	150705	150715	150726	150736	150747	150757	58	2. 4
50768	150778	150789	150799	150810	150820	150831	150842	150852	150863	150873	150884	57	3. 6
50894	150905	150915	150926	150936	150947	150958	150968	150979	150989	151000	151010	56	4. 8
51021	151031	151042	151053	151063	151074	151084	151095	151105	151116	151126	151137	55	1" = 2
51148	151158	151169	151179	151190	151200	151211	151221	151232	151243	151253	151264	54	2. 4
51274	151285	151295	151306	151317	151327	151338	151348	151359	151369	151380	151390	53	3. 6
51401	151412	151422	151433	151443	151454	151465	151475	151486	151496	151507	151517	52	4. 8
51528	151539	151549	151560	151570	151581	151591	151602	151613	151623	151634	151644	51	1" = 2
51655	151665	151676	151687	151697	151708	151718	151729	151740	151750	151761	151771	50	2. 4
51782	151793	151803	151814	151824	151835	151845	151856	151867	151877	151888	151898	49	3. 6
51909	151920	151930	151941	151951	151962	151973	151983	151994	152004	152015	152026	48	4. 8
52036	152047	152057	152068	152079	152089	152100	152110	152121	152132	152142	152153	47	1" = 2
52163	152174	152185	152195	152206	152217	152227	152238	152248	152259	152270	152280	46	2. 4
52291	152301	152312	152323	152333	152344	152354	152365	152376	152386	152397	152408	45	3. 6
52418	152429	152439	152450	152461	152471	152482	152493	152503	152514	152524	152535	44	4. 9
52546	152556	152567	152578	152588	152599	152609	152620	152631	152641	152652	152663	43	1" = 2
52673	152684	152694	152705	152716	152726	152737	152748	152758	152769	152780	152790	42	2. 4
52801	152811	152822	152833	152843	152854	152865	152875	152886	152897	152907	152918	41	3. 6
52929	152939	152950	152960	152971	152982	152992	153003	153014	153024	153035	153046	40	4. 9
53056	153067	153078	153088	153099	153110	153120	153131	153142	153152	153163	153174	39	1" = 2
53184	153195	153205	153216	153227	153237	153248	153259	153269	153280	153291	153301	38	2. 4
53312	153323	153333	153344	153355	153365	153376	153387	153397	153408	153419	153429	37	3. 6
53440	153451	153461	153472	153483	153493	153504	153515	153525	153536	153547	153557	36	4. 9
53568	153579	153590	153600	153611	153622	153632	153643	153654	153664	153675	153686	35	1" = 2
53696	153707	153718	153728	153739	153750	153760	153771	153782	153792	153803	153814	34	2. 4
53825	153835	153846	153857	153867	153878	153889	153899	153910	153921	153931	153942	33	3. 6
53953	153964	153974	153985	153996	154006	154017	154028	154038	154049	154060	154070	32	4. 9
54081	154092	154103	154113	154124	154135	154145	154156	154167	154178	154188	154199	31	1" = 2
54210	154220	154231	154242	154252	154263	154274	154285	154295	154306	154317	154327	30	2. 4
54338	154349	154360	154370	154381	154392	154402	154413	154424	154435	154445	154456	29	3. 6
54467	154477	154488	154499	154510	154520	154531	154542	154553	154563	154574	154585	28	4. 9
54595	154606	154617	154628	154638	154649	154660	154671	154681	154692	154703	154713	27	1" = 2
54724	154735	154746	154756	154767	154778	154789	154799	154810	154821	154831	154842	26	2. 4
54853	154864	154874	154885	154896	154907	154917	154928	154939	154950	154960	154971	25	3. 6
54982	154993	155003	155014	155025	155036	155046	155057	155068	155079	155089	155100	24	4. 9
55111	155122	155132	155143	155154	155165	155175	155186	155197	155208	155218	155229	23	1" = 2
55240	155251	155261	155272	155283	155294	155304	155315	155326	155337	155347	155358	22	2. 4
55369	155380	155391	155401	155412	155423	155434	155444	155455	155466	155477	155487	21	3. 6
55498	155509	155520	155530	155541	155552	155563	155574	155584	155595	155606	155617	20	4. 9
55627	155638	155649	155660	155671	155681	155692	155703	155714	155724	155735	155746	19	1" = 2
55756	155768	155778	155789	155800	155811	155821	155832	155843	155854	155865	155875	18	2. 4
55885	155897	155908	155919	155929	155940	155951	155962	155973	155983	155994	156005	17	3. 6
56014	156027	156037	156048	156059	156070	156080	156091	156102	156113	156124	156134	16	4. 9
56143	156156	156167	156178	156188	156199	156210	156221	156232	156243	156253	156264	15	1" = 2
56272	156286	156297	156307	156318	156329	156340	156351	156361	156372	156383	156394	14	2. 4
56401	156415	156426	156437	156448	156459	156470	156480	156491	156502	156513	156524	13	3. 6
56530	156545	156556	156567	156578	156589	156599	156610	156621	156632	156643	156653	12	4. 9
56659	156675	156686	156697	156708	156718	156729	156740	156751	156762	156773	156783	11	1" = 2
56788	156805	156816	156827	156838	156848	156859	156870	156881	156892	156903	156913	10	2. 4
56917	156935	156946	156957	156968	156978	156989	157000	157011	157022	157033	157044	9	3. 6
57046	157065	157076	157087	157098	157109	157119	157130	157141	157152	157163	157174	8	4. 9
57175	157195	157206	157217	157228	157239	157250	157261	157271	157282	157293	157304	7	1" = 2
57304	157326	157337	157347	157358	157369	157380	157391	157402	157413	157423	157434	6	2. 4
57433	157456	157467	157478	157489	157499	157510	157521	157532	157543	157554	157565	5	3. 6
57562	157586	157597	157608	157619	157630	157641	157652	157663	157673	157684	157695	4	4. 9
57691	157717	157728	157739	157750	157760	157771	157782	157793	157804	157815	157826	3	1" = 2
57820	157847	157858	157869	157880	157891	157902	157913	157924	157935	157946	157957	2	2. 4
57949	157978	157989	158000	158011	158022	158033	158044	158055	158066	158076	158087	1	3. 6
58078	158109	158120	158131	158141	158152	158163	158174	158185	158196	158207	158218	0	4. 9
1°	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proper parts
Co-secant of 44 degrees, or Secant of 134 degrees.												Minutes	Proper parts

LOGARITHMIC SECANTS.

Minutes	Secant of 46 degrees, or Co-secant of 136 degrees.												Minutes	Propor- tion.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10. 158229	158240	158250	158261	158272	158283	158294	158305	158316	158327	158338	158349	59	1 = 1
1	10. 158360	158370	158381	158392	158403	158414	158425	158436	158447	158458	158469	158480	58	2 = 1
2	10. 158490	158501	158512	158523	158534	158545	158556	158567	158578	158589	158600	158611	57	3 = 1
3	10. 158621	158632	158643	158654	158665	158676	158687	158698	158709	158720	158731	158742	56	4 = 1
4	10. 158753	158763	158774	158785	158796	158807	158818	158829	158840	158851	158862	158873	55	1 = 2
5	10. 158884	158895	158906	158917	158927	158938	158949	158960	158971	158982	158993	159004	54	2 = 2
6	10. 159015	159026	159037	159048	159059	159070	159081	159092	159103	159113	159124	159135	53	3 = 2
7	10. 159146	159157	159168	159179	159190	159201	159212	159223	159234	159245	159256	159267	52	4 = 2
8	10. 159278	159289	159300	159311	159321	159332	159343	159354	159365	159376	159387	159398	51	1 = 3
9	10. 159409	159420	159431	159442	159453	159464	159475	159486	159497	159508	159519	159530	50	2 = 3
10	10. 159541	159552	159563	159574	159585	159596	159607	159617	159628	159639	159650	159661	49	3 = 3
11	10. 159672	159683	159694	159705	159716	159727	159738	159749	159760	159771	159782	159793	48	4 = 3
12	10. 159804	159815	159826	159837	159848	159859	159870	159881	159892	159903	159914	159925	47	1 = 4
13	10. 159936	159947	159958	159969	159980	159991	160002	160013	160024	160035	160046	160057	46	2 = 4
14	10. 160069	160079	160090	160101	160112	160123	160134	160145	160156	160167	160178	160189	45	3 = 4
15	10. 160200	160211	160222	160233	160244	160255	160266	160277	160288	160299	160310	160321	44	4 = 4
16	10. 160332	160343	160354	160365	160376	160387	160398	160409	160420	160431	160442	160453	43	1 = 5
17	10. 160464	160475	160486	160497	160508	160519	160530	160541	160552	160563	160574	160585	42	2 = 5
18	10. 160596	160607	160618	160629	160640	160651	160662	160673	160684	160695	160706	160717	41	3 = 5
19	10. 160728	160739	160750	160761	160772	160783	160794	160805	160816	160827	160838	160849	40	4 = 5
20	10. 160860	160871	160882	160893	160904	160916	160927	160938	160949	160960	160971	160982	39	1 = 6
21	10. 160993	161004	161015	161026	161037	161048	161059	161070	161081	161092	161103	161114	38	2 = 6
22	10. 161125	161136	161147	161158	161169	161180	161191	161203	161214	161225	161236	161247	37	3 = 6
23	10. 161258	161269	161280	161291	161302	161313	161324	161335	161346	161357	161368	161379	36	4 = 6
24	10. 161390	161401	161413	161424	161435	161446	161457	161468	161479	161490	161501	161512	35	1 = 7
25	10. 161523	161534	161545	161556	161567	161578	161589	161601	161612	161623	161634	161645	34	2 = 7
26	10. 161656	161667	161678	161689	161700	161711	161722	161733	161744	161755	161767	161778	33	3 = 7
27	10. 161789	161800	161811	161822	161833	161844	161855	161866	161877	161888	161899	161911	32	4 = 7
28	10. 161923	161933	161944	161955	161966	161977	161988	161999	162010	162021	162032	162044	31	1 = 8
29	10. 162055	162066	162077	162088	162099	162110	162121	162132	162143	162154	162166	162177	30	2 = 8
30	10. 162188	162199	162210	162221	162232	162243	162254	162265	162277	162288	162299	162310	29	3 = 8
31	10. 162321	162332	162343	162354	162365	162376	162388	162399	162410	162421	162432	162443	28	4 = 8
32	10. 162454	162465	162476	162487	162499	162510	162521	162532	162543	162554	162565	162576	27	1 = 9
33	10. 162587	162599	162610	162621	162632	162643	162654	162665	162676	162688	162699	162710	26	2 = 9
34	10. 162721	162732	162743	162754	162765	162776	162788	162799	162810	162821	162832	162843	25	3 = 9
35	10. 162854	162865	162877	162888	162899	162910	162921	162932	162943	162955	162966	162977	24	4 = 9
36	10. 162988	162999	163010	163021	163032	163044	163055	163066	163077	163088	163099	163110	23	1 = 10
37	10. 163122	163133	163144	163155	163166	163177	163188	163200	163211	163222	163233	163244	22	2 = 10
38	10. 163255	163266	163278	163289	163300	163311	163322	163333	163344	163355	163366	163378	21	3 = 10
39	10. 163389	163400	163411	163422	163434	163445	163456	163467	163478	163489	163501	163512	20	4 = 10
40	10. 163523	163534	163545	163556	163568	163579	163590	163601	163612	163623	163634	163646	19	1 = 11
41	10. 163657	163668	163679	163690	163701	163713	163724	163735	163746	163757	163769	163780	18	2 = 11
42	10. 163791	163802	163813	163824	163836	163847	163858	163869	163880	163891	163903	163914	17	3 = 11
43	10. 163925	163936	163947	163958	163970	163981	163992	164003	164014	164026	164037	164048	16	4 = 11
44	10. 164059	164070	164081	164093	164104	164115	164126	164137	164149	164160	164171	164182	15	1 = 12
45	10. 164193	164205	164216	164227	164238	164249	164261	164272	164283	164294	164305	164317	14	2 = 12
46	10. 164328	164339	164350	164361	164373	164384	164395	164406	164417	164428	164439	164451	13	3 = 12
47	10. 164462	164473	164485	164496	164507	164518	164529	164541	164552	164563	164574	164585	12	4 = 12
48	10. 164597	164608	164619	164630	164641	164653	164664	164675	164686	164698	164709	164720	11	1 = 13
49	10. 164731	164742	164754	164765	164776	164787	164798	164810	164821	164832	164843	164855	10	2 = 13
50	10. 164866	164877	164888	164900	164911	164922	164933	164944	164955	164967	164978	164989	9	3 = 13
51	10. 165001	165012	165023	165034	165045	165057	165068	165079	165090	165102	165113	165124	8	4 = 13
52	10. 165135	165147	165158	165169	165180	165192	165203	165214	165225	165237	165248	165259	7	1 = 14
53	10. 165270	165281	165293	165304	165315	165326	165338	165349	165360	165371	165383	165394	6	2 = 14
54	10. 165405	165416	165428	165439	165450	165461	165473	165484	165495	165506	165518	165529	5	3 = 14
55	10. 165540	165551	165563	165574	165585	165597	165608	165619	165630	165642	165653	165664	4	4 = 14
56	10. 165675	165687	165698	165709	165720	165732	165743	165754	165765	165777	165788	165799	3	1 = 15
57	10. 165811	165822	165833	165844	165856	165867	165878	165889	165901	165912	165923	165935	2	2 = 15
58	10. 165946	165957	165968	165980	165991	166002	166013	166025	166036	166047	166059	166070	1	3 = 15
59	10. 166081	166092	166104	166115	166126	166138	166149	166160	166171	166183	166194	166205	0	4 = 15
Minutes	60	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Propor- tion.
Co-secant of 43 degrees, or Secant of 133 degrees.														

LOGARITHMIC SECANTS.

Secant of 47 degrees, or Co-secant of 137 degrees.											Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
9217	166228	166239	166250	166262	166273	166284	166296	166307	166318	166330	59	1" = 2
9352	166363	166375	166386	166397	166409	166420	166431	166443	166454	166465	58	2. 5
9488	166499	166510	166522	166533	166544	166556	166567	166578	166589	166601	57	3. 7
9623	166635	166646	166657	166669	166680	166691	166703	166714	166725	166737	56	4. 9
9759	166770	166782	166793	166804	166816	166827	166838	166850	166861	166872	55	1 = 2
9895	166906	166918	166929	166940	166952	166963	166974	166986	166997	167008	54	2. 5
10031	167042	167054	167065	167076	167088	167099	167110	167122	167133	167144	53	3. 7
10167	167178	167190	167201	167212	167224	167235	167246	167258	167269	167280	52	4. 9
10303	167314	167326	167337	167348	167360	167371	167382	167394	167405	167416	51	1 = 2
10439	167450	167462	167473	167484	167496	167507	167519	167530	167541	167553	50	2. 5
10575	167587	167598	167609	167621	167632	167643	167655	167666	167678	167689	49	3. 7
10712	167723	167734	167746	167757	167768	167780	167791	167803	167814	167825	48	4. 9
10848	167859	167871	167882	167893	167905	167916	167928	167939	167950	167962	47	1 = 2
10984	167996	168007	168019	168030	168041	168053	168064	168075	168087	168098	46	2. 5
11121	168132	168144	168155	168167	168178	168189	168201	168212	168223	168235	45	3. 7
11258	168269	168280	168292	168303	168315	168326	168337	168349	168360	168372	44	4. 9
11394	168406	168417	168429	168440	168451	168463	168474	168486	168497	168508	43	1 = 2
11531	168543	168554	168565	168577	168588	168600	168611	168622	168634	168645	42	2. 5
11668	168679	168691	168702	168714	168725	168736	168748	168759	168771	168782	41	3. 7
11805	168816	168828	168839	168851	168862	168873	168885	168896	168908	168919	40	4. 9
11942	168953	168965	168976	168988	168999	169011	169022	169033	169045	169056	39	1 = 2
12079	169090	169102	169113	169125	169136	169148	169159	169171	169182	169193	38	2. 5
12216	169228	169239	169251	169262	169273	169285	169296	169308	169319	169331	37	3. 7
12354	169365	169376	169388	169399	169411	169422	169434	169445	169457	169468	36	4. 9
12491	169502	169514	169525	169537	169548	169560	169571	169582	169594	169605	35	1 = 2
12628	169640	169651	169663	169674	169686	169697	169708	169720	169731	169743	34	2. 5
12766	169777	169789	169800	169812	169823	169835	169846	169857	169869	169880	33	3. 7
12903	169915	169926	169938	169949	169961	169972	169984	169995	170007	170018	32	4. 9
13041	170053	170064	170075	170087	170098	170110	170121	170133	170144	170156	31	1 = 2
13179	170190	170202	170213	170225	170236	170248	170259	170271	170282	170294	30	2. 5
13317	170328	170340	170351	170363	170374	170386	170397	170409	170420	170432	29	3. 7
13455	170466	170478	170489	170500	170512	170523	170535	170546	170558	170569	28	4. 9
13592	170604	170616	170627	170639	170650	170662	170673	170685	170696	170708	27	1 = 2
13731	170742	170754	170765	170777	170788	170800	170811	170823	170834	170846	26	2. 5
13869	170880	170892	170903	170915	170926	170938	170949	170961	170972	170984	25	3. 7
14007	171018	171030	171042	171053	171065	171076	171088	171099	171111	171122	24	4. 9
14145	171157	171168	171180	171191	171203	171214	171226	171238	171249	171261	23	1 = 2
14284	171295	171307	171318	171330	171341	171353	171364	171376	171387	171399	22	2. 5
14422	171434	171445	171457	171468	171480	171491	171503	171514	171526	171538	21	3. 7
14561	171572	171584	171595	171607	171618	171630	171642	171653	171665	171676	20	4. 9
14699	171711	171722	171734	171746	171757	171769	171780	171792	171803	171815	19	1 = 2
14838	171850	171861	171873	171884	171896	171907	171919	171931	171942	171954	18	2. 5
14977	171988	172000	172012	172023	172035	172046	172058	172069	172081	172093	17	3. 7
15116	172127	172139	172150	172162	172174	172185	172197	172208	172220	172231	16	4. 9
15255	172266	172278	172289	172301	172313	172324	172336	172347	172359	172371	15	1 = 2
15394	172405	172417	172428	172440	172452	172463	172475	172486	172498	172510	14	2. 5
15533	172544	172556	172568	172579	172591	172602	172614	172626	172637	172649	13	3. 7
15672	172684	172695	172707	172718	172730	172742	172753	172765	172776	172788	12	4. 9
15811	172823	172835	172846	172858	172869	172881	172893	172904	172916	172927	11	1 = 2
15951	172962	172974	172986	172997	173009	173020	173032	173044	173055	173067	10	2. 5
16090	173102	173113	173125	173137	173148	173160	173171	173183	173195	173206	9	3. 7
16230	173241	173253	173265	173276	173288	173299	173311	173323	173334	173346	8	4. 9
16369	173381	173393	173404	173416	173427	173439	173451	173462	173474	173486	7	1 = 2
16509	173521	173532	173544	173556	173567	173579	173590	173602	173614	173625	6	2. 5
16649	173660	173672	173684	173695	173707	173719	173730	173742	173754	173765	5	3. 7
16789	173800	173812	173824	173835	173847	173859	173870	173882	173893	173905	4	4. 9
16928	173940	173952	173963	173975	173987	173999	174010	174022	174033	174045	3	1 = 2
17069	174080	174092	174104	174115	174127	174139	174150	174162	174174	174185	2	2. 5
17209	174220	174232	174244	174255	174267	174279	174290	174302	174314	174325	1	3. 7
17349	174360	174372	174384	174396	174407	174419	174431	174442	174454	174466	0	4. 9
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.
Co-secant of 42 degrees, or Secant of 132 degrees.											Minutes	Proport. parts.

LOGARITHMIC SECANTS.

Minutes	Secant of 48 degrees, or Co-secant of 138 degrees.												Minutes	Proport. parts.
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
0	10.174489	174501	174512	174524	174536	174548	174559	174571	174583	174594	174606	174618	59	1 = 3
1	10.174629	174641	174653	174665	174676	174688	174700	174711	174723	174735	174746	174758	58	2 = 3
2	10.174770	174782	174793	174805	174817	174828	174840	174852	174863	174875	174887	174899	57	3 = 3
3	10.174910	174922	174934	174945	174957	174969	174981	174992	175004	175016	175027	175039	56	4 = 3
4	10.175051	175063	175074	175086	175098	175110	175121	175133	175145	175156	175168	175180	55	1 = 3
5	10.175192	175203	175215	175227	175239	175250	175262	175274	175285	175297	175309	175321	54	2 = 3
6	10.175332	175344	175356	175368	175379	175391	175403	175415	175426	175438	175450	175461	53	3 = 3
7	10.175473	175485	175497	175508	175520	175532	175544	175555	175567	175579	175591	175602	52	4 = 3
8	10.175614	175626	175638	175649	175661	175673	175685	175696	175708	175720	175732	175743	51	1 = 3
9	10.175755	175767	175779	175790	175802	175814	175826	175837	175849	175861	175873	175884	50	2 = 3
10	10.175896	175908	175920	175932	175943	175955	175967	175979	175990	176002	176014	176026	49	3 = 3
11	10.176037	176049	176061	176073	176084	176096	176108	176120	176132	176143	176155	176167	48	4 = 3
12	10.176179	176190	176202	176214	176226	176238	176249	176261	176273	176285	176296	176308	47	1 = 3
13	10.176320	176332	176344	176355	176367	176379	176391	176402	176414	176426	176438	176450	46	2 = 3
14	10.176461	176473	176485	176497	176509	176520	176532	176544	176556	176568	176579	176591	45	3 = 3
15	10.176603	176615	176626	176638	176650	176662	176674	176685	176697	176709	176721	176733	44	4 = 3
16	10.176744	176756	176768	176780	176792	176803	176815	176827	176839	176851	176863	176874	43	1 = 3
17	10.176886	176898	176910	176922	176933	176945	176957	176969	176981	176992	177004	177016	42	2 = 3
18	10.177028	177040	177052	177063	177075	177087	177099	177111	177122	177134	177146	177158	41	3 = 3
19	10.177170	177182	177193	177205	177217	177229	177241	177252	177264	177276	177288	177300	40	4 = 3
20	10.177312	177323	177335	177347	177359	177371	177383	177394	177406	177418	177430	177442	39	1 = 3
21	10.177454	177465	177477	177489	177501	177513	177525	177537	177548	177560	177572	177584	38	2 = 3
22	10.177596	177608	177619	177631	177643	177655	177667	177679	177690	177702	177714	177726	37	3 = 3
23	10.177738	177750	177762	177773	177785	177797	177809	177821	177833	177845	177856	177868	36	4 = 3
24	10.177880	177892	177904	177916	177928	177939	177951	177963	177975	177987	177999	178011	35	1 = 3
25	10.178022	178034	178046	178058	178070	178082	178094	178106	178117	178129	178141	178153	34	2 = 3
26	10.178165	178177	178189	178200	178212	178224	178236	178248	178260	178272	178284	178296	33	3 = 3
27	10.178307	178319	178331	178343	178355	178367	178379	178391	178402	178414	178426	178438	32	4 = 3
28	10.178450	178462	178474	178486	178498	178509	178521	178533	178545	178557	178569	178581	31	1 = 3
29	10.178593	178605	178616	178628	178640	178652	178664	178676	178688	178700	178712	178723	30	2 = 3
30	10.178735	178747	178759	178771	178783	178795	178807	178819	178831	178842	178854	178866	29	3 = 3
31	10.178878	178890	178902	178914	178926	178938	178950	178962	178973	178985	178997	179009	28	4 = 3
32	10.179021	179033	179045	179057	179069	179081	179093	179105	179116	179128	179140	179152	27	1 = 3
33	10.179164	179176	179188	179200	179212	179224	179236	179248	179260	179271	179283	179295	26	2 = 3
34	10.179307	179319	179331	179343	179355	179367	179379	179391	179403	179415	179427	179438	25	3 = 3
35	10.179450	179462	179474	179486	179498	179510	179522	179534	179546	179558	179570	179582	24	4 = 3
36	10.179594	179606	179618	179629	179641	179653	179665	179677	179689	179701	179713	179725	23	1 = 3
37	10.179737	179749	179761	179773	179785	179797	179809	179821	179833	179845	179856	179868	22	2 = 3
38	10.179880	179892	179904	179916	179928	179940	179952	179964	179976	179988	180000	180012	21	3 = 3
39	10.180024	180036	180048	180060	180072	180084	180096	180108	180120	180132	180144	180156	20	4 = 3
40	10.180167	180179	180191	180203	180215	180227	180239	180251	180263	180275	180287	180299	19	1 = 3
41	10.180311	180323	180335	180347	180359	180371	180383	180395	180407	180419	180431	180443	18	2 = 3
42	10.180455	180467	180479	180491	180503	180515	180527	180539	180551	180563	180575	180587	17	3 = 3
43	10.180599	180611	180623	180635	180647	180659	180671	180683	180695	180707	180719	180731	16	4 = 3
44	10.180743	180755	180767	180779	180791	180803	180815	180827	180839	180851	180863	180875	15	1 = 3
45	10.180887	180899	180911	180923	180935	180947	180959	180971	180983	180995	181007	181019	14	2 = 3
46	10.181031	181043	181055	181067	181079	181091	181103	181115	181127	181139	181151	181163	13	3 = 3
47	10.181175	181187	181199	181211	181223	181235	181247	181259	181271	181283	181295	181307	12	4 = 3
48	10.181319	181331	181343	181355	181367	181379	181391	181403	181415	181427	181440	181452	11	1 = 3
49	10.181464	181476	181488	181500	181512	181524	181536	181548	181560	181572	181584	181596	10	2 = 3
50	10.181608	181620	181632	181644	181656	181668	181680	181692	181704	181716	181728	181740	9	3 = 3
51	10.181753	181765	181777	181789	181801	181813	181825	181837	181849	181861	181873	181885	8	4 = 3
52	10.181897	181909	181921	181933	181945	181957	181969	181982	181994	182006	182018	182030	7	1 = 3
53	10.182042	182054	182066	182078	182090	182102	182114	182126	182138	182150	182162	182175	6	2 = 3
54	10.182187	182199	182211	182223	182235	182247	182259	182271	182283	182295	182307	182319	5	3 = 3
55	10.182331	182344	182356	182368	182380	182392	182404	182416	182428	182440	182452	182464	4	4 = 3
56	10.182476	182488	182501	182513	182525	182537	182549	182561	182573	182585	182597	182609	3	1 = 3
57	10.182621	182634	182646	182658	182670	182682	182694	182706	182718	182730	182742	182754	2	2 = 3
58	10.182767	182779	182791	182803	182815	182827	182839	182851	182863	182875	182888	182900	1	3 = 3
59	10.182912	182924	182936	182948	182960	182972	182984	182996	183009	183021	183033	183045	0	4 = 3
Minutes	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-secant of 41 degrees, or Secant of 131 degrees.														

LOGARITHMIC SECANTS.

Secant of 49 degrees, or Co-secant of 139 degrees.											Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
3057	183069	183081	183093	183105	183118	183130	183142	183154	183166	183178	50	1" = 2
3202	183215	183227	183239	183251	183263	183275	183287	183299	183311	183324	58	2. 5
3348	183360	183372	183384	183396	183408	183421	183433	183445	183457	183469	57	3. 7
3493	183506	183518	183530	183542	183554	183566	183578	183590	183603	183615	56	4. 10
3639	183651	183663	183675	183688	183700	183712	183724	183736	183748	183760	55	1" = 2
3785	183797	183809	183821	183833	183845	183858	183870	183882	183894	183906	54	2. 5
3931	183943	183955	183967	183979	183991	184003	184016	184028	184040	184052	53	3. 7
4076	184089	184101	184113	184125	184137	184149	184162	184174	184186	184198	52	4. 10
4222	184235	184247	184259	184271	184283	184295	184308	184320	184332	184344	51	1" = 2
4368	184381	184393	184405	184417	184429	184442	184454	184466	184478	184490	50	2. 5
4515	184527	184539	184551	184563	184575	184588	184600	184612	184624	184636	49	3. 7
4661	184673	184685	184697	184710	184722	184734	184746	184758	184771	184783	48	4. 10
4807	184819	184832	184844	184856	184868	184880	184893	184905	184917	184929	47	1" = 2
4954	184966	184978	184990	185002	185015	185027	185039	185051	185063	185076	46	2. 5
5100	185112	185124	185137	185149	185161	185173	185185	185198	185210	185222	45	3. 7
5247	185259	185271	185283	185295	185308	185320	185332	185344	185357	185369	44	4. 10
5393	185405	185418	185430	185442	185454	185467	185479	185491	185503	185516	43	1" = 2
5540	185552	185564	185577	185589	185601	185613	185626	185638	185650	185662	42	2. 5
5687	185699	185711	185724	185736	185748	185760	185773	185785	185797	185809	41	3. 7
5834	185846	185858	185870	185883	185895	185907	185919	185932	185944	185956	40	4. 10
5981	185993	186005	186017	186030	186042	186054	186067	186079	186091	186103	39	1" = 2
6128	186140	186152	186165	186177	186189	186201	186214	186226	186238	186250	38	2. 5
6275	186287	186300	186312	186324	186336	186349	186361	186373	186385	186398	37	3. 7
6422	186435	186447	186459	186471	186484	186496	186508	186520	186533	186545	36	4. 10
6570	186582	186594	186606	186619	186631	186643	186656	186668	186680	186692	35	1" = 2
6717	186729	186742	186754	186766	186779	186791	186803	186815	186828	186840	34	2. 5
6865	186877	186889	186901	186914	186926	186938	186951	186963	186975	186988	33	3. 7
7012	187024	187037	187049	187061	187074	187086	187098	187111	187123	187135	32	4. 10
7160	187172	187185	187197	187209	187221	187234	187246	187258	187271	187283	31	1" = 2
7308	187320	187332	187345	187357	187369	187382	187394	187406	187419	187431	30	2. 5
7456	187468	187480	187493	187505	187517	187530	187542	187554	187566	187579	29	3. 7
7603	187616	187628	187640	187653	187665	187678	187690	187702	187715	187727	28	4. 10
7752	187764	187776	187789	187801	187813	187826	187838	187850	187863	187875	27	1" = 2
7900	187912	187924	187937	187949	187961	187974	187986	187998	188011	188023	26	2. 5
8048	188060	188072	188085	188097	188110	188122	188134	188147	188159	188171	25	3. 7
8196	188209	188221	188233	188246	188258	188270	188283	188295	188307	188320	24	4. 10
8345	188357	188369	188382	188394	188406	188419	188431	188444	188456	188468	23	1" = 2
8493	188505	188518	188530	188543	188555	188567	188580	188592	188604	188617	22	2. 5
8642	188654	188666	188679	188691	188704	188716	188728	188741	188753	188766	21	3. 7
8790	188803	188815	188827	188840	188852	188865	188877	188889	188902	188914	20	4. 10
8939	188951	188964	188976	188989	189001	189013	189026	189038	189051	189063	19	1" = 2
9088	189100	189113	189125	189138	189150	189162	189175	189187	189200	189212	18	2. 5
9237	189249	189262	189274	189286	189299	189311	189324	189336	189349	189361	17	3. 7
9386	189398	189411	189423	189435	189448	189460	189473	189485	189498	189510	16	4. 10
9535	189547	189560	189572	189585	189597	189609	189622	189634	189647	189659	15	1" = 2
9684	189697	189709	189721	189734	189746	189759	189771	189784	189796	189808	14	2. 5
9833	189846	189858	189871	189883	189896	189908	189920	189933	189945	189958	13	3. 7
9982	189995	190008	190020	190033	190045	190057	190070	190082	190095	190107	12	4. 10
10132	190145	190157	190170	190182	190194	190207	190219	190232	190244	190257	11	1" = 3
10282	190299	190307	190319	190332	190344	190357	190369	190381	190394	190406	10	2. 5
10431	190444	190456	190469	190481	190494	190506	190519	190531	190544	190556	9	3. 7
10581	190594	190606	190618	190631	190643	190656	190668	190681	190693	190706	8	4. 10
10731	190743	190756	190768	190781	190793	190806	190818	190831	190843	190856	7	1" = 3
10881	190893	190906	190918	190931	190943	190956	190968	190981	190993	191006	6	2. 5
11031	191043	191056	191068	191081	191093	191106	191118	191131	191143	191156	5	3. 7
11181	191193	191206	191218	191231	191243	191256	191268	191281	191293	191306	4	4. 10
11331	191343	191356	191368	191381	191394	191406	191419	191431	191444	191456	3	1" = 3
11481	191494	191506	191519	191531	191544	191556	191569	191581	191594	191606	2	2. 5
11631	191644	191657	191669	191682	191694	191707	191719	191732	191744	191757	1	3. 7
11782	191794	191807	191820	191832	191845	191857	191870	191882	191895	191907	0	4. 10
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.
Co-secant of 40 degrees, or Secant of 130 degrees.											Minutes	Proport. parts.

LOGARITHMIC SECANTS.

Secant of 50 degrees, or Co-secant of 140 degrees.															
Minutes	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	Minutes	Prop.	
0	10. 191932	191945	191958	191970	191983	191995	192008	192020	192033	192045	192058	192070	59	1° =	
1	10. 192083	192096	192108	192121	192133	192146	192158	192171	192184	192196	192209	192221	58	2.	
2	10. 192234	192246	192259	192271	192284	192297	192309	192322	192334	192347	192359	192372	57	3.	
3	10. 192385	192397	192410	192423	192435	192447	192460	192473	192485	192498	192510	192523	56	4.	
4	10. 192535	192548	192561	192573	192586	192598	192611	192623	192636	192649	192661	192674	55	1° =	
5	10. 192686	192699	192712	192724	192737	192749	192762	192774	192787	192800	192812	192825	54	2.	
6	10. 192837	192850	192863	192875	192888	192900	192913	192926	192938	192951	192963	192976	53	3.	
7	10. 192989	193001	193014	193026	193039	193052	193064	193077	193089	193102	193115	193127	52	4.	
8	10. 193140	193152	193165	193178	193190	193203	193215	193228	193241	193253	193266	193278	51	1° =	
9	10. 193291	193304	193316	193329	193342	193354	193367	193379	193392	193405	193417	193430	50	2.	
10	10. 193442	193455	193468	193480	193493	193506	193518	193531	193543	193556	193569	193581	49	3.	
11	10. 193594	193607	193619	193632	193644	193657	193670	193682	193695	193708	193720	193733	48	4.	
12	10. 193746	193758	193771	193783	193796	193809	193821	193834	193847	193859	193872	193885	47	1° =	
13	10. 193897	193910	193923	193935	193948	193960	193973	193986	193998	194011	194024	194036	46	2.	
14	10. 194049	194062	194074	194087	194100	194112	194125	194138	194150	194163	194176	194188	45	3.	
15	10. 194201	194213	194226	194239	194251	194264	194277	194289	194302	194315	194327	194340	44	4.	
16	10. 194353	194365	194378	194391	194403	194416	194429	194441	194454	194467	194479	194492	43	1° =	
17	10. 194505	194517	194530	194543	194555	194568	194581	194594	194606	194619	194632	194644	42	2.	
18	10. 194657	194670	194682	194695	194708	194720	194733	194746	194758	194771	194784	194796	41	3.	
19	10. 194809	194822	194835	194847	194860	194873	194885	194898	194911	194923	194936	194949	40	4.	
20	10. 194961	194974	194987	195000	195012	195025	195038	195050	195063	195076	195088	195101	39	1° =	
21	10. 195114	195127	195139	195152	195165	195177	195190	195203	195215	195228	195241	195254	38	2.	
22	10. 195266	195279	195292	195304	195317	195330	195343	195355	195368	195381	195393	195406	37	3.	
23	10. 195419	195432	195444	195457	195470	195482	195495	195508	195521	195533	195546	195559	36	4.	
24	10. 195572	195584	195597	195610	195622	195635	195648	195661	195673	195686	195699	195712	35	1° =	
25	10. 195724	195737	195750	195763	195775	195788	195801	195813	195826	195839	195852	195864	34	2.	
26	10. 195877	195890	195903	195915	195928	195941	195954	195966	195979	195992	196005	196017	33	3.	
27	10. 196030	196043	196056	196068	196081	196094	196107	196119	196132	196145	196158	196170	32	4.	
28	10. 196183	196196	196209	196221	196234	196247	196260	196272	196285	196298	196311	196323	31	1° =	
29	10. 196336	196349	196362	196375	196387	196400	196413	196426	196438	196451	196464	196477	30	2.	
30	10. 196489	196502	196515	196528	196541	196553	196566	196579	196592	196604	196617	196630	29	3.	
31	10. 196643	196656	196668	196681	196694	196707	196719	196732	196745	196758	196771	196783	28	4.	
32	10. 196796	196809	196822	196834	196847	196860	196873	196886	196898	196911	196924	196937	27	1° =	
33	10. 196950	196962	196975	196988	197001	197014	197026	197039	197052	197065	197078	197090	26	2.	
34	10. 197103	197116	197129	197142	197154	197167	197180	197193	197206	197218	197231	197244	25	3.	
35	10. 197257	197270	197282	197295	197308	197321	197334	197346	197359	197372	197385	197398	24	4.	
36	10. 197411	197423	197436	197449	197462	197475	197487	197500	197513	197526	197539	197552	23	1° =	
37	10. 197564	197577	197590	197603	197616	197629	197641	197654	197667	197680	197693	197706	22	2.	
38	10. 197718	197731	197744	197757	197770	197783	197795	197808	197821	197834	197847	197860	21	3.	
39	10. 197872	197885	197898	197911	197924	197937	197949	197962	197975	197988	198001	198014	20	4.	
40	10. 198026	198039	198052	198065	198078	198091	198104	198116	198129	198142	198155	198168	19	1° =	
41	10. 198181	198194	198206	198219	198232	198245	198258	198271	198284	198296	198309	198322	18	2.	
42	10. 198335	198348	198361	198374	198386	198399	198412	198425	198438	198451	198464	198477	17	3.	
43	10. 198489	198502	198515	198528	198541	198554	198567	198580	198592	198605	198618	198631	16	4.	
44	10. 198644	198657	198670	198683	198695	198708	198721	198734	198747	198760	198773	198786	15	1° =	
45	10. 198798	198811	198824	198837	198850	198863	198876	198889	198902	198914	198927	198940	14	2.	
46	10. 198953	198966	198979	198992	199005	199018	199030	199043	199056	199069	199082	199095	13	3.	
47	10. 199108	199121	199134	199147	199159	199172	199185	199198	199211	199224	199237	199250	12	4.	
48	10. 199263	199276	199289	199301	199314	199327	199340	199353	199366	199379	199392	199405	11	1° =	
49	10. 199418	199431	199444	199456	199469	199482	199495	199508	199521	199534	199547	199560	10	2.	
50	10. 199573	199586	199599	199611	199624	199637	199650	199663	199676	199689	199702	199715	9	3.	
51	10. 199728	199741	199754	199767	199780	199793	199805	199818	199831	199844	199857	199870	8	4.	
52	10. 199883	199896	199909	199922	199935	199948	199961	199974	199987	200000	200012	200025	7	1° =	
53	10. 200038	200051	200064	200077	200090	200103	200116	200129	200142	200155	200168	200181	6	2.	
54	10. 200194	200207	200220	200233	200246	200259	200272	200284	200297	200310	200323	200336	5	3.	
55	10. 200349	200362	200375	200388	200401	200414	200427	200440	200453	200466	200479	200492	4	4.	
56	10. 200505	200518	200531	200544	200557	200570	200583	200596	200609	200622	200635	200648	3	1° =	
57	10. 200661	200674	200687	200699	200712	200725	200738	200751	200764	200777	200790	200803	2	2.	
58	10. 200816	200829	200842	200855	200868	200881	200894	200907	200920	200933	200946	200959	1	3.	
59	10. 200972	200985	200998	201011	201024	201037	201050	201063	201076	201089	201102	201115	0	4.	
Minutes	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Prop.	
Co-secant of 39 degrees, or Secant of 129 degrees.															

LOGARITHMIC SECANTS.

Secant of 51 degrees, or Co-secant of 141 degrees.													Minutes	Proport. parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
201128	201141	201154	201167	201180	201193	201206	201219	201232	201245	201258	201271	59	1 = 3	
201284	201297	201310	201323	201336	201349	201362	201375	201388	201401	201414	201427	58	2. = 5	
201440	201453	201466	201479	201492	201505	201518	201531	201544	201558	201571	201584	57	3. = 8	
201597	201610	201623	201636	201649	201662	201675	201688	201701	201714	201727	201740	56	4. = 10	
201753	201766	201779	201792	201805	201818	201831	201844	201857	201870	201883	201896	55	1 = 3	
201909	201922	201935	201948	201961	201975	201988	202001	202014	202027	202040	202053	54	2. = 5	
202066	202079	202092	202105	202118	202131	202144	202157	202170	202183	202196	202209	53	3. = 8	
202222	202236	202249	202262	202275	202288	202301	202314	202327	202340	202353	202366	52	4. = 10	
202379	202392	202405	202418	202431	202444	202458	202471	202484	202497	202510	202523	51	1 = 3	
202536	202549	202562	202575	202588	202601	202614	202627	202641	202654	202667	202680	50	2. = 5	
202693	202706	202719	202732	202745	202758	202771	202784	202798	202811	202824	202837	49	3. = 8	
202850	202863	202876	202889	202902	202915	202928	202941	202955	202968	202981	202994	48	4. = 10	
203007	203020	203033	203046	203059	203072	203085	203099	203112	203125	203138	203151	47	1 = 3	
203164	203177	203190	203203	203217	203230	203243	203256	203269	203282	203295	203308	46	2. = 5	
203321	203334	203348	203361	203374	203387	203400	203413	203426	203439	203452	203466	45	3. = 8	
203479	203492	203505	203518	203531	203544	203557	203571	203584	203597	203610	203623	44	4. = 10	
203636	203649	203662	203676	203689	203702	203715	203728	203741	203754	203767	203781	43	1 = 3	
203794	203807	203820	203833	203846	203859	203873	203886	203899	203912	203925	203938	42	2. = 5	
203951	203964	203977	203991	204004	204017	204030	204043	204056	204070	204083	204096	41	3. = 8	
204109	204122	204135	204149	204162	204175	204188	204201	204214	204227	204241	204254	40	4. = 11	
204267	204280	204293	204306	204320	204333	204346	204359	204372	204385	204399	204412	39	1 = 3	
204425	204438	204451	204464	204477	204491	204504	204517	204530	204543	204557	204570	38	2. = 5	
204583	204596	204609	204622	204636	204649	204662	204675	204688	204701	204715	204728	37	3. = 8	
204741	204754	204767	204781	204794	204807	204820	204833	204846	204860	204873	204886	36	4. = 11	
204899	204912	204926	204939	204952	204965	204978	204991	205005	205018	205031	205044	35	1 = 3	
205057	205071	205084	205097	205110	205123	205137	205150	205163	205176	205189	205203	34	2. = 5	
205216	205229	205242	205255	205269	205282	205295	205308	205322	205335	205348	205361	33	3. = 8	
205374	205388	205401	205414	205427	205440	205454	205467	205480	205493	205506	205520	32	4. = 11	
205533	205546	205559	205573	205586	205599	205612	205625	205639	205652	205665	205678	31	1 = 3	
205692	205705	205718	205731	205745	205758	205771	205784	205797	205811	205824	205837	30	2. = 5	
205850	205864	205877	205890	205903	205917	205930	205943	205956	205970	205983	205996	29	3. = 8	
206009	206022	206036	206049	206062	206075	206089	206102	206115	206128	206142	206155	28	4. = 11	
206168	206181	206195	206208	206221	206234	206248	206261	206274	206287	206301	206314	27	1 = 3	
206327	206341	206354	206367	206380	206394	206407	206420	206433	206447	206460	206473	26	2. = 5	
206486	206500	206513	206526	206539	206553	206566	206579	206593	206606	206619	206632	25	3. = 8	
206646	206659	206672	206685	206699	206712	206725	206739	206752	206765	206778	206792	24	4. = 11	
206805	206818	206832	206845	206858	206872	206885	206898	206911	206925	206938	206951	23	1 = 3	
206964	206978	206991	207004	207018	207031	207044	207057	207071	207084	207097	207111	22	2. = 5	
207124	207137	207151	207164	207177	207190	207204	207217	207230	207244	207257	207270	21	3. = 8	
207284	207297	207310	207324	207337	207350	207363	207377	207390	207403	207417	207430	20	4. = 11	
207443	207457	207470	207483	207497	207510	207523	207537	207550	207563	207577	207590	19	1 = 3	
207603	207616	207630	207643	207656	207670	207683	207696	207710	207723	207736	207750	18	2. = 5	
207763	207776	207790	207803	207816	207830	207843	207856	207870	207883	207896	207910	17	3. = 8	
207923	207936	207950	207963	207976	207990	208003	208016	208030	208043	208056	208070	16	4. = 11	
208083	208097	208110	208123	208137	208150	208163	208177	208190	208203	208217	208230	15	1 = 3	
208243	208257	208270	208283	208297	208310	208324	208337	208350	208364	208377	208390	14	2. = 5	
208404	208417	208430	208444	208457	208471	208484	208497	208511	208524	208537	208551	13	3. = 8	
208564	208577	208591	208604	208618	208631	208644	208658	208671	208684	208698	208711	12	4. = 11	
208725	208738	208751	208765	208778	208791	208805	208818	208832	208845	208858	208872	11	1 = 3	
208885	208899	208912	208925	208939	208952	208965	208979	208992	209006	209019	209032	10	2. = 5	
209046	209059	209073	209086	209099	209113	209126	209140	209153	209166	209180	209193	9	3. = 8	
209207	209220	209233	209247	209260	209274	209287	209300	209314	209327	209341	209354	8	4. = 11	
209367	209381	209394	209408	209421	209435	209448	209461	209475	209488	209502	209515	7	1 = 3	
209528	209542	209555	209569	209582	209596	209609	209622	209636	209649	209663	209676	6	2. = 5	
209690	209703	209716	209730	209743	209757	209770	209784	209797	209810	209824	209837	5	3. = 8	
209851	209864	209878	209891	209904	209918	209931	209945	209958	209972	209985	209999	4	4. = 11	
210012	210025	210039	210052	210066	210079	210093	210106	210120	210133	210146	210160	3	1 = 3	
210173	210187	210200	210214	210227	210241	210254	210267	210281	210294	210308	210321	2	2. = 5	
210335	210348	210362	210375	210389	210402	210416	210429	210442	210456	210469	210483	1	3. = 8	
210496	210510	210523	210537	210550	210564	210577	210591	210604	210618	210631	210644	0	4. = 11	
30°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°		Minutes	Proport. parts.
Co-secant of 38 degrees, or Secant of 128 degrees.														

LOGARITHMIC SECANTS.

Secant of 52 degrees, or Co-secant of 142 degrees.													Minutes	Proport.
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
0	10.210658	210671	210685	210698	210712	210725	210739	210752	210766	210779	210793	210806	59	1 =
1	10.210820	210833	210847	210860	210874	210887	210901	210914	210928	210941	210955	210968	58	2.
2	10.210982	210995	211009	211022	211036	211049	211063	211076	211090	211103	211117	211130	57	3.
3	10.211143	211157	211170	211184	211197	211211	211225	211238	211252	211265	211279	211292	56	4. 1
4	10.211306	211319	211333	211346	211360	211373	211387	211400	211414	211427	211441	211454	55	1 =
5	10.211468	211481	211495	211508	211522	211535	211549	211562	211576	211589	211603	211616	54	2.
6	10.211630	211643	211657	211670	211684	211698	211711	211725	211738	211752	211765	211779	53	3.
7	10.211792	211806	211819	211833	211846	211860	211873	211887	211900	211914	211928	211941	52	4. 1
8	10.211955	211968	211982	211995	212009	212022	212036	212049	212063	212077	212090	212104	51	1 =
9	10.212117	212131	212144	212158	212171	212185	212198	212212	212226	212239	212253	212266	50	2.
10	10.212280	212293	212307	212320	212334	212348	212361	212375	212388	212402	212415	212429	49	5.
11	10.212443	212456	212470	212483	212497	212510	212524	212537	212551	212565	212578	212592	48	4. 1
12	10.212605	212619	212632	212646	212660	212673	212687	212700	212714	212728	212741	212755	47	1 =
13	10.212768	212782	212795	212809	212823	212836	212850	212863	212877	212890	212904	212918	46	2.
14	10.212931	212945	212958	212972	212986	212999	213013	213026	213040	213054	213067	213081	45	3.
15	10.213094	213108	213122	213135	213149	213162	213176	213190	213203	213217	213230	213244	44	4. 1
16	10.213258	213271	213285	213298	213312	213326	213339	213353	213366	213380	213394	213407	43	1 =
17	10.213421	213434	213448	213462	213475	213489	213503	213516	213530	213543	213557	213571	42	2.
18	10.213584	213598	213612	213625	213639	213652	213666	213680	213693	213707	213721	213734	41	3.
19	10.213748	213761	213775	213789	213802	213816	213830	213843	213857	213870	213884	213898	40	4. 1
20	10.213911	213925	213939	213952	213966	213980	213993	214007	214021	214034	214048	214061	39	1 =
21	10.214075	214089	214102	214116	214130	214143	214157	214171	214184	214198	214212	214225	38	2.
22	10.214239	214253	214266	214280	214294	214307	214321	214334	214348	214362	214375	214389	37	3.
23	10.214403	214416	214430	214444	214457	214471	214485	214498	214512	214526	214539	214553	36	4. 1
24	10.214567	214580	214594	214608	214621	214635	214649	214662	214676	214690	214704	214717	35	1 =
25	10.214731	214745	214758	214772	214786	214799	214813	214827	214840	214854	214868	214881	34	2.
26	10.214895	214909	214922	214936	214950	214964	214977	214991	215005	215018	215032	215046	33	3.
27	10.215059	215073	215087	215100	215114	215128	215142	215155	215169	215183	215196	215210	32	4. 1
28	10.215224	215237	215251	215265	215279	215292	215306	215320	215333	215347	215361	215375	31	1 =
29	10.215388	215402	215416	215429	215443	215457	215471	215484	215498	215512	215525	215539	30	2.
30	10.215553	215567	215580	215594	215608	215621	215635	215649	215663	215676	215690	215704	29	3.
31	10.215718	215731	215745	215759	215772	215786	215800	215814	215827	215841	215855	215869	28	4. 1
32	10.215882	215896	215910	215924	215937	215951	215965	215978	215992	216006	216020	216033	27	1 =
33	10.216047	216061	216075	216088	216102	216116	216130	216143	216157	216171	216185	216198	26	2.
34	10.216212	216226	216240	216253	216267	216281	216295	216308	216322	216336	216350	216363	25	3.
35	10.216377	216391	216405	216419	216432	216446	216460	216474	216487	216501	216515	216529	24	4. 1
36	10.216542	216556	216570	216584	216598	216611	216625	216639	216653	216666	216680	216694	23	1 =
37	10.216708	216721	216735	216749	216763	216777	216790	216804	216818	216832	216846	216859	22	2.
38	10.216873	216887	216901	216914	216928	216942	216956	216970	216983	216997	217011	217025	21	3.
39	10.217039	217052	217066	217080	217094	217108	217121	217135	217149	217163	217177	217190	20	4. 1
40	10.217204	217218	217232	217246	217259	217273	217287	217301	217315	217328	217342	217356	19	1 =
41	10.217370	217384	217397	217411	217425	217439	217453	217467	217480	217494	217508	217522	18	2.
42	10.217536	217549	217563	217577	217591	217605	217619	217632	217646	217660	217674	217688	17	3.
43	10.217702	217715	217729	217743	217757	217771	217785	217798	217812	217826	217840	217854	16	4. 1
44	10.217868	217881	217895	217909	217923	217937	217951	217964	217978	217992	218006	218020	15	1 =
45	10.218034	218047	218061	218075	218089	218103	218117	218131	218144	218158	218172	218186	14	2.
46	10.218200	218214	218227	218241	218255	218269	218283	218297	218311	218324	218338	218352	13	3.
47	10.218366	218380	218394	218408	218422	218435	218449	218463	218477	218491	218505	218519	12	4. 1
48	10.218532	218546	218560	218574	218588	218602	218616	218630	218643	218657	218671	218685	11	1 =
49	10.218699	218713	218727	218741	218754	218768	218782	218796	218810	218824	218838	218852	10	2.
50	10.218866	218879	218893	218907	218921	218935	218949	218963	218977	218991	219004	219018	9	3.
51	10.219032	219046	219060	219074	219088	219102	219116	219129	219143	219157	219171	219185	8	4. 1
52	10.219199	219213	219227	219241	219255	219269	219282	219296	219310	219324	219338	219352	7	1 =
53	10.219366	219380	219394	219408	219422	219435	219449	219463	219477	219491	219505	219519	6	2.
54	10.219533	219547	219561	219575	219589	219602	219616	219630	219644	219658	219672	219686	5	3.
55	10.219700	219714	219728	219742	219756	219770	219784	219797	219811	219825	219839	219853	4	4. 1
56	10.219867	219881	219895	219909	219923	219937	219951	219965	219979	219993	220007	220020	3	1 =
57	10.220034	220048	220062	220076	220090	220104	220118	220132	220146	220160	220174	220188	2	2.
58	10.220202	220216	220230	220244	220258	220272	220286	220300	220314	220327	220341	220355	1	3.
59	10.220360	220373	220387	220401	220415	220429	220443	220457	220471	220485	220499	220513	0	4. 1
Minute	60	55	50	45	40	35	30	25	20	15	10	5	Minute	
Co-secant of 37 degrees, or Secant of 127 degrees.														

LOGARITHMIC SECANTS.

Secant of 53 degrees, or Co-secant of 143 degrees.												Minutes	Proport. parts.
	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
537	220551	220565	220579	220593	220607	220621	220635	220649	220663	220677	220691	59	1" = 3
705	220719	220733	220747	220761	220775	220789	220802	220816	220830	220844	220858	58	2. 6
872	220886	220900	220914	220928	220942	220956	220970	220984	220998	221012	221026	57	3. 8
040	221054	221068	221082	221096	221110	221124	221138	221152	221166	221180	221194	56	4. 11
208	221232	221246	221260	221274	221288	221302	221316	221330	221344	221358	221372	55	1 = 3
376	221390	221404	221418	221432	221446	221460	221475	221489	221503	221517	221531	54	2. 6
545	221559	221573	221587	221601	221615	221629	221643	221657	221671	221685	221699	53	3. 8
713	221727	221741	221755	221769	221783	221797	221811	221825	221839	221853	221867	52	4. 11
881	221895	221909	221923	221937	221951	221965	221979	221993	222007	222021	222035	51	1 = 3
050	222064	222078	222092	222106	222120	222134	222148	222162	222176	222190	222204	50	2. 6
218	222233	222247	222261	222275	222289	222303	222317	222331	222345	222359	222373	49	3. 8
387	222401	222415	222429	222443	222457	222471	222485	222499	222513	222527	222541	48	4. 11
556	222570	222584	222598	222612	222626	222640	222654	222668	222682	222696	222710	47	1 = 3
725	222739	222753	222767	222781	222795	222809	222823	222837	222851	222865	222879	46	2. 6
894	222908	222922	222936	222950	222964	222978	222992	223006	223020	223034	223048	45	3. 8
063	223077	223091	223105	223119	223133	223147	223161	223175	223189	223203	223217	44	4. 11
232	223246	223260	223274	223288	223302	223316	223330	223344	223358	223372	223386	43	1 = 3
402	223416	223430	223444	223458	223472	223486	223500	223514	223528	223542	223556	42	2. 6
571	223585	223599	223613	223627	223641	223655	223669	223683	223697	223711	223725	41	3. 8
741	223755	223769	223783	223797	223811	223825	223839	223853	223867	223881	223895	40	4. 11
910	223924	223938	223952	223966	223980	223994	224008	224022	224036	224050	224064	39	1 = 3
080	224094	224108	224122	224136	224150	224164	224178	224192	224206	224220	224234	38	2. 6
250	224264	224278	224292	224306	224320	224334	224348	224362	224376	224390	224404	37	3. 8
420	224434	224448	224462	224476	224490	224504	224518	224532	224546	224560	224574	36	4. 11
590	224604	224618	224632	224646	224660	224674	224688	224702	224716	224730	224744	35	1 = 3
760	224774	224788	224802	224816	224830	224844	224858	224872	224886	224900	224914	34	2. 6
930	224944	224958	224972	224986	225000	225014	225028	225042	225056	225070	225084	33	3. 8
101	225115	225129	225143	225157	225171	225185	225200	225214	225228	225242	225257	32	4. 11
271	225285	225300	225314	225328	225342	225356	225370	225384	225398	225412	225427	31	1 = 3
442	225456	225470	225484	225498	225512	225526	225540	225554	225568	225582	225596	30	2. 6
612	225627	225641	225655	225669	225683	225697	225711	225726	225740	225754	225769	29	3. 8
783	225797	225811	225826	225840	225854	225868	225883	225897	225911	225926	225940	28	4. 11
954	225968	225982	225997	226011	226025	226039	226054	226068	226082	226096	226111	27	1 = 3
125	226139	226153	226168	226182	226196	226211	226225	226239	226253	226268	226282	26	2. 6
296	226310	226325	226339	226353	226367	226382	226396	226410	226424	226439	226453	25	3. 8
467	226481	226496	226510	226524	226539	226553	226567	226581	226596	226610	226624	24	4. 11
639	226653	226667	226681	226696	226710	226724	226739	226753	226767	226781	226796	23	1 = 3
810	226824	226838	226853	226867	226881	226896	226910	226924	226939	226953	226967	22	2. 6
981	226996	227010	227024	227039	227053	227067	227081	227096	227110	227125	227139	21	3. 8
153	227167	227181	227196	227210	227225	227239	227253	227268	227282	227296	227311	20	4. 11
325	227339	227353	227368	227382	227396	227411	227425	227439	227454	227468	227482	19	1 = 3
497	227511	227525	227540	227554	227568	227583	227597	227611	227626	227640	227654	18	2. 6
669	227683	227697	227712	227726	227740	227755	227769	227783	227798	227812	227826	17	3. 8
841	227855	227869	227884	227898	227912	227927	227941	227955	227970	227984	227998	16	4. 11
113	228027	228041	228056	228070	228084	228099	228113	228128	228142	228156	228171	15	1 = 3
285	228199	228214	228228	228242	228257	228271	228286	228300	228314	228329	228343	14	2. 6
457	228372	228386	228400	228415	228429	228444	228458	228472	228487	228501	228515	13	3. 8
630	228544	228559	228573	228587	228602	228616	228630	228645	228659	228674	228688	12	4. 11
802	228717	228731	228745	228760	228774	228789	228803	228817	228832	228846	228861	11	1 = 3
975	228889	228904	228918	228933	228947	228961	228976	228990	229005	229019	229033	10	2. 6
148	229062	229077	229091	229105	229120	229134	229149	229163	229177	229192	229206	9	3. 8
321	229235	229249	229264	229278	229293	229307	229322	229336	229350	229365	229379	8	4. 11
494	229408	229422	229437	229451	229466	229480	229495	229509	229523	229538	229552	7	1 = 3
667	229581	229596	229610	229624	229639	229653	229668	229682	229697	229711	229725	6	2. 6
840	229754	229769	229783	229798	229812	229827	229841	229855	229870	229884	229899	5	3. 8
113	229928	229942	229957	229971	229985	230000	230014	230029	230043	230058	230072	4	4. 11
287	230101	230116	230130	230144	230159	230173	230188	230202	230217	230231	230246	3	1 = 3
460	230275	230289	230303	230318	230332	230347	230361	230376	230390	230405	230419	2	2. 6
634	230448	230463	230477	230492	230506	230521	230535	230550	230564	230578	230593	1	3. 8
807	230622	230636	230651	230665	230680	230694	230709	230723	230738	230752	230767	0	4. 11
55" 50" 45" 40" 35" 30" 25" 20" 15" 10" 5"												Minutes	Proport. parts.
Co-secant of 36 degrees, or Secant of 126 degrees.													

TABLE XXXV.

LOGARITHMIC SECANTS.

		Secant of 54 degrees, or Co-secant of 144 degrees.													
Minutes		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10.	230781	230796	230810	230825	230839	230854	230868	230883	230897	230912	230926	230941		
1	10.	230955	230970	230984	230999	231013	231028	231042	231057	231071	231086	231100	231115		
2	10.	231129	231144	231158	231173	231187	231202	231216	231231	231245	231260	231274	231289		
3	10.	231303	231318	231332	231347	231361	231376	231390	231405	231420	231434	231449	231463		
4	10.	231478	231492	231507	231521	231536	231550	231565	231579	231594	231608	231623	231637		
5	10.	231652	231667	231681	231696	231710	231725	231739	231754	231768	231783	231797	231811		
6	10.	231826	231841	231856	231870	231885	231899	231914	231928	231943	231957	231972	231986		
7	10.	232001	232016	232030	232045	232059	232074	232088	232103	232117	232132	232147	232161		
8	10.	232176	232190	232205	232219	232234	232249	232263	232278	232292	232307	232321	232336		
9	10.	232351	232365	232380	232394	232409	232423	232438	232453	232467	232482	232496	232511		
10	10.	232525	232540	232555	232569	232584	232598	232613	232627	232642	232656	232671	232685		
11	10.	232700	232715	232730	232744	232759	232773	232788	232803	232817	232832	232846	232861		
12	10.	232876	232890	232905	232919	232934	232949	232963	232978	232992	233007	233021	233036		
13	10.	233051	233065	233080	233095	233109	233124	233138	233153	233167	233182	233197	233211		
14	10.	233226	233241	233255	233270	233285	233299	233314	233328	233343	233358	233372	233387		
15	10.	233401	233416	233431	233445	233460	233475	233489	233504	233518	233533	233548	233562		
16	10.	233577	233592	233606	233621	233636	233650	233665	233679	233694	233709	233723	233738		
17	10.	233753	233767	233782	233797	233811	233826	233841	233855	233870	233884	233899	233913		
18	10.	233928	233943	233958	233972	233987	234002	234016	234031	234046	234060	234075	234089		
19	10.	234104	234119	234134	234148	234163	234178	234192	234207	234222	234236	234251	234265		
20	10.	234280	234295	234310	234324	234339	234354	234368	234383	234398	234412	234427	234441		
21	10.	234456	234471	234486	234500	234515	234530	234544	234559	234574	234588	234603	234617		
22	10.	234633	234647	234662	234677	234691	234706	234721	234735	234750	234765	234779	234794		
23	10.	234809	234824	234838	234853	234868	234882	234897	234912	234926	234941	234955	234970		
24	10.	234985	235000	235015	235029	235044	235059	235073	235088	235103	235118	235132	235147		
25	10.	235162	235177	235191	235206	235221	235235	235250	235265	235279	235294	235309	235323		
26	10.	235338	235353	235368	235383	235397	235412	235427	235441	235456	235471	235486	235500		
27	10.	235515	235530	235545	235559	235574	235589	235603	235618	235633	235648	235662	235677		
28	10.	235692	235707	235721	235736	235751	235766	235780	235795	235810	235825	235839	235854		
29	10.	235869	235884	235898	235913	235928	235943	235957	235972	235987	236002	236016	236031		
30	10.	236046	236061	236075	236090	236105	236120	236134	236149	236164	236179	236193	236208		
31	10.	236223	236238	236253	236267	236282	236297	236312	236326	236341	236356	236371	236385		
32	10.	236400	236415	236430	236445	236459	236474	236489	236504	236519	236533	236548	236563		
33	10.	236578	236593	236607	236622	236637	236652	236666	236681	236696	236711	236726	236740		
34	10.	236755	236770	236785	236800	236814	236829	236844	236859	236874	236888	236903	236918		
35	10.	236933	236948	236962	236977	236992	237007	237022	237036	237051	237066	237081	237095		
36	10.	237111	237125	237140	237155	237170	237185	237199	237214	237229	237244	237259	237273		
37	10.	237288	237303	237318	237333	237348	237362	237377	237392	237407	237422	237437	237451		
38	10.	237466	237481	237496	237511	237526	237540	237555	237570	237585	237600	237615	237629		
39	10.	237644	237659	237674	237689	237704	237719	237733	237748	237763	237778	237793	237807		
40	10.	237822	237837	237852	237867	237882	237897	237912	237926	237941	237956	237971	237985		
41	10.	238001	238016	238030	238045	238060	238075	238090	238105	238120	238134	238149	238164		
42	10.	238179	238194	238209	238224	238239	238253	238268	238283	238298	238313	238328	238342		
43	10.	238358	238372	238387	238402	238417	238432	238447	238462	238477	238492	238506	238521		
44	10.	238536	238551	238566	238581	238596	238611	238626	238640	238655	238670	238685	238699		
45	10.	238715	238730	238745	238760	238774	238789	238804	238819	238834	238849	238864	238878		
46	10.	238894	238909	238924	238938	238953	238968	238983	238998	239013	239028	239043	239057		
47	10.	239073	239088	239102	239117	239132	239147	239162	239177	239192	239207	239222	239236		
48	10.	239252	239267	239281	239296	239311	239326	239341	239355	239371	239386	239401	239415		
49	10.	239431	239446	239461	239476	239491	239505	239520	239535	239550	239565	239580	239594		
50	10.	239610	239625	239640	239655	239670	239685	239700	239715	239730	239745	239759	239774		
51	10.	239789	239804	239819	239834	239849	239864	239879	239894	239909	239924	239939	239953		
52	10.	239969	239984	239999	240014	240029	240044	240059	240074	240089	240104	240119	240133		
53	10.	240148	240163	240178	240193	240208	240223	240238	240253	240268	240283	240298	240312		
54	10.	240328	240343	240358	240373	240388	240403	240418	240433	240448	240463	240478	240492		
55	10.	240508	240523	240538	240553	240568	240583	240598	240613	240628	240643	240658	240672		
56	10.	240688	240703	240718	240733	240748	240763	240778	240793	240808	240823	240838	240852		
57	10.	240868	240883	240898	240913	240928	240943	240958	240973	240988	241003	241018	241032		
58	10.	241048	241063	241078	241093	241108	241123	241138	241153	241168	241183	241198	241212		
59	10.	241228	241243	241258	241273	241288	241303	241318	241333	241349	241364	241379	241393		
		60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'		
		Co-secant of 35 degrees, or Secant of 125 degrees.													
Minutes		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		

LOGARITHMIC SECANTS.

Secant of 55 degrees, or Co-secant of 145 degrees.											Minutes	Proport. parts.	
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
29	241424	241439	241454	241469	241484	241499	241514	241529	241544	241559	241574	59	1" = 3
30	241604	241619	241634	241649	241664	241679	241694	241710	241725	241740	241755	58	2. 6
31	241785	241800	241815	241830	241845	241860	241875	241890	241905	241920	241935	57	3. 9
32	241965	241981	241996	242011	242026	242041	242056	242071	242086	242101	242116	56	4. 12
33	242146	242161	242176	242192	242207	242222	242237	242252	242267	242282	242297	55	1 = 3
34	242327	242342	242357	242372	242388	242403	242418	242433	242448	242463	242478	54	2. 6
35	242508	242523	242538	242554	242569	242584	242599	242614	242629	242644	242659	53	3. 9
36	242689	242705	242720	242735	242750	242765	242780	242795	242810	242825	242840	52	4. 12
37	242871	242886	242901	242916	242931	242946	242961	242976	242992	243007	243022	51	1 = 3
38	243052	243067	243082	243097	243113	243128	243143	243158	243173	243188	243203	50	2. 6
39	243234	243249	243264	243279	243294	243309	243324	243339	243355	243370	243385	49	3. 9
40	243415	243430	243445	243461	243476	243491	243506	243521	243536	243551	243567	48	4. 12
41	243597	243612	243627	243642	243657	243673	243688	243703	243718	243733	243748	47	1 = 3
42	243779	243794	243809	243824	243839	243855	243870	243885	243900	243915	243930	46	2. 6
43	243961	243976	243991	244006	244021	244037	244052	244067	244082	244097	244112	45	3. 9
44	244143	244158	244173	244188	244203	244219	244234	244249	244264	244279	244295	44	4. 12
45	244325	244340	244355	244370	244386	244401	244416	244431	244446	244462	244477	43	1 = 3
46	244507	244522	244538	244553	244568	244583	244598	244614	244629	244644	244659	42	2. 6
47	244690	244705	244720	244735	244750	244766	244781	244796	244811	244826	244842	41	3. 9
48	244872	244887	244903	244918	244933	244948	244963	244979	244994	245009	245024	40	4. 12
49	245057	245072	245088	245103	245118	245133	245148	245163	245177	245192	245207	39	1 = 3
50	245237	245253	245268	245283	245298	245314	245329	245344	245359	245375	245390	38	2. 6
51	245420	245436	245451	245466	245481	245497	245512	245527	245542	245558	245573	37	3. 9
52	245603	245619	245634	245649	245664	245680	245695	245710	245725	245741	245756	36	4. 12
53	245786	245802	245817	245832	245847	245863	245878	245893	245908	245924	245939	35	1 = 3
54	245970	245985	246000	246015	246031	246046	246061	246076	246092	246107	246122	34	2. 6
55	246153	246168	246183	246199	246214	246229	246245	246260	246275	246290	246306	33	3. 9
56	246336	246352	246367	246382	246397	246413	246428	246443	246459	246474	246489	32	4. 12
57	246520	246535	246550	246566	246581	246596	246612	246627	246642	246658	246673	31	1 = 3
58	246703	246719	246734	246749	246765	246780	246795	246811	246826	246841	246857	30	2. 6
59	246887	246903	246918	246933	246949	246964	246979	246994	247010	247025	247040	29	3. 9
60	247071	247086	247102	247117	247132	247148	247163	247178	247194	247209	247224	28	4. 12
61	247255	247270	247286	247301	247316	247332	247347	247362	247378	247393	247409	27	1 = 3
62	247439	247455	247470	247485	247501	247516	247531	247547	247562	247577	247593	26	2. 6
63	247623	247639	247654	247670	247685	247700	247716	247731	247746	247762	247777	25	3. 9
64	247808	247823	247839	247854	247869	247885	247900	247915	247931	247946	247961	24	4. 12
65	247992	248008	248023	248038	248054	248069	248085	248100	248115	248131	248146	23	1 = 3
66	248177	248192	248208	248223	248238	248254	248269	248285	248300	248315	248331	22	2. 6
67	248361	248377	248392	248408	248423	248438	248454	248469	248485	248500	248515	21	3. 9
68	248546	248562	248577	248593	248608	248623	248639	248654	248670	248685	248700	20	4. 12
69	248731	248747	248762	248777	248793	248808	248824	248839	248855	248870	248885	19	1 = 3
70	248916	248932	248947	248963	248978	248993	249009	249024	249040	249055	249071	18	2. 6
71	249101	249117	249132	249148	249163	249179	249194	249209	249225	249240	249256	17	3. 9
72	249287	249302	249318	249333	249348	249364	249379	249395	249410	249426	249441	16	4. 12
73	249472	249487	249503	249518	249534	249549	249565	249580	249596	249611	249627	15	1 = 3
74	249658	249673	249688	249704	249719	249735	249750	249766	249781	249797	249812	14	2. 6
75	249843	249859	249874	249890	249905	249921	249936	249951	249967	249982	249998	13	3. 9
76	250029	250044	250060	250075	250091	250106	250122	250137	250153	250168	250184	12	4. 12
77	250215	250230	250246	250261	250277	250292	250308	250323	250339	250354	250370	11	1 = 3
78	250401	250416	250432	250447	250463	250478	250494	250509	250525	250540	250556	10	2. 6
79	250587	250602	250618	250633	250649	250664	250680	250695	250711	250726	250742	9	3. 9
80	250773	250788	250804	250819	250835	250851	250866	250882	250897	250913	250928	8	4. 12
81	250959	250975	250990	251006	251021	251037	251052	251068	251084	251099	251115	7	1 = 3
82	251146	251161	251177	251192	251208	251223	251239	251254	251270	251286	251301	6	2. 6
83	251332	251348	251363	251379	251394	251410	251426	251441	251457	251472	251488	5	3. 9
84	251519	251534	251550	251566	251581	251597	251612	251628	251643	251659	251674	4	4. 12
85	251706	251721	251737	251752	251768	251783	251799	251815	251830	251846	251861	3	1 = 3
86	251893	251908	251924	251939	251955	251970	251986	252002	252017	252033	252048	2	2. 6
87	252080	252095	252111	252126	252142	252157	252173	252189	252204	252220	252235	1	3. 9
88	252267	252282	252298	252313	252329	252345	252360	252376	252391	252407	252423	0	4. 12
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.	
Co-secant of 34 degrees, or Secant of 124 degrees.													

LOGARITHMIC SECANTS.

		Secant of 56 degrees, or Co-secant of 146 degrees.													
Minutes		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proper.
		10. 252438	252454	252470	252485	252501	252516	252532	252548	252563	252579	252594	252610	59	1"
1	10. 252626	252641	252657	252673	252688	252704	252719	252735	252751	252766	252782	252797	252813	58	2.
2	10. 252813	252829	252844	252860	252876	252891	252907	252923	252938	252954	252969	252985	253001	57	3.
3	10. 253001	253016	253032	253048	253063	253079	253095	253110	253126	253141	253157	253173	253188	56	4.
4	10. 253188	253204	253220	253235	253251	253267	253282	253298	253314	253329	253345	253361	253376	55	1 =
5	10. 253376	253392	253408	253423	253439	253455	253470	253486	253502	253517	253533	253549	253564	54	2.
6	10. 253564	253580	253596	253611	253627	253643	253658	253674	253690	253705	253721	253737	253752	53	3.
7	10. 253752	253768	253784	253799	253815	253831	253846	253862	253878	253893	253909	253925	253940	52	4.
8	10. 253940	253956	253972	253987	254003	254019	254035	254050	254066	254082	254097	254113	254129	51	1 =
9	10. 254129	254144	254160	254176	254192	254207	254223	254239	254254	254270	254286	254301	254317	50	2.
10	10. 254317	254333	254349	254364	254380	254396	254411	254427	254443	254459	254474	254490	254506	49	3.
11	10. 254506	254521	254537	254553	254569	254584	254600	254616	254631	254647	254663	254679	254694	48	4.
12	10. 254694	254710	254726	254741	254757	254773	254789	254804	254820	254836	254852	254867	254883	47	1 =
13	10. 254883	254899	254915	254930	254946	254962	254978	254993	255009	255025	255040	255056	255072	46	2.
14	10. 255072	255088	255103	255119	255135	255151	255166	255182	255198	255214	255229	255245	255261	45	3.
15	10. 255261	255277	255292	255308	255324	255340	255356	255371	255387	255403	255419	255434	255450	44	4.
16	10. 255450	255466	255482	255497	255513	255529	255545	255560	255576	255592	255608	255624	255639	43	1 =
17	10. 255639	255655	255671	255687	255702	255718	255734	255750	255766	255781	255797	255813	255829	42	2.
18	10. 255829	255845	255860	255876	255892	255908	255923	255939	255955	255971	255987	256002	256018	41	3.
19	10. 256018	256034	256050	256066	256081	256097	256113	256129	256145	256160	256176	256192	256208	40	4.
20	10. 256208	256224	256239	256255	256271	256287	256303	256318	256334	256350	256366	256382	256397	39	1 =
21	10. 256397	256413	256429	256445	256461	256477	256492	256508	256524	256540	256556	256571	256587	38	2.
22	10. 256587	256603	256619	256635	256651	256667	256682	256698	256714	256730	256746	256761	256777	37	3.
23	10. 256777	256793	256809	256825	256841	256857	256872	256888	256904	256920	256936	256951	256967	36	4.
24	10. 256967	256983	256999	257015	257031	257047	257063	257078	257094	257110	257126	257142	257158	35	1 =
25	10. 257158	257173	257189	257205	257221	257237	257253	257269	257285	257300	257316	257332	257348	34	2.
26	10. 257348	257364	257380	257396	257411	257427	257443	257459	257475	257491	257507	257523	257539	33	3.
27	10. 257539	257554	257570	257586	257602	257618	257634	257650	257666	257681	257697	257713	257729	32	4.
28	10. 257729	257745	257761	257777	257793	257808	257824	257840	257856	257872	257888	257904	257920	31	1 =
29	10. 257920	257936	257951	257967	257983	257999	258015	258031	258047	258063	258079	258095	258111	30	2.
30	10. 258111	258126	258142	258158	258174	258190	258206	258222	258238	258254	258270	258285	258301	29	3.
31	10. 258301	258317	258333	258349	258365	258381	258397	258413	258429	258445	258461	258477	258493	28	4.
32	10. 258493	258509	258524	258540	258556	258572	258588	258604	258620	258636	258652	258668	258684	27	1 =
33	10. 258684	258700	258715	258731	258747	258763	258779	258795	258811	258827	258843	258859	258875	26	2.
34	10. 258875	258891	258907	258923	258939	258955	258971	258987	259003	259019	259035	259051	259067	25	3.
35	10. 259067	259082	259099	259114	259130	259146	259162	259178	259194	259210	259226	259242	259258	24	4.
36	10. 259258	259274	259290	259306	259322	259338	259354	259370	259386	259402	259418	259434	259450	23	1 =
37	10. 259450	259465	259481	259497	259513	259529	259545	259561	259577	259593	259609	259625	259641	22	2.
38	10. 259641	259657	259673	259689	259705	259721	259737	259753	259769	259785	259801	259817	259833	21	3.
39	10. 259833	259849	259865	259881	259897	259913	259929	259945	259961	259977	259993	260009	260025	20	4.
40	10. 260025	260041	260057	260073	260089	260105	260121	260137	260153	260169	260185	260201	260217	19	1 =
41	10. 260217	260233	260249	260265	260281	260297	260313	260329	260345	260361	260377	260393	260409	18	2.
42	10. 260409	260425	260441	260457	260473	260489	260505	260521	260537	260553	260569	260585	260601	17	3.
43	10. 260601	260617	260633	260649	260665	260681	260697	260713	260729	260745	260761	260777	260793	16	4.
44	10. 260793	260809	260825	260841	260857	260873	260889	260905	260921	260937	260953	260969	260985	15	1 =
45	10. 260985	261001	261017	261033	261049	261065	261081	261097	261113	261129	261145	261161	261177	14	2.
46	10. 261177	261193	261209	261225	261241	261257	261273	261289	261305	261321	261337	261353	261369	13	3.
47	10. 261369	261385	261401	261417	261433	261449	261465	261481	261497	261513	261529	261545	261561	12	4.
48	10. 261561	261577	261593	261609	261625	261641	261657	261673	261689	261705	261721	261737	261753	11	1 =
49	10. 261753	261769	261785	261801	261817	261833	261849	261865	261881	261897	261913	261929	261945	10	2.
50	10. 261945	261961	261977	261993	262009	262025	262041	262057	262073	262089	262105	262121	262137	9	3.
51	10. 262137	262153	262169	262185	262201	262217	262233	262249	262265	262281	262297	262313	262329	8	4.
52	10. 262329	262345	262361	262377	262393	262409	262425	262441	262457	262473	262489	262505	262521	7	1 =
53	10. 262521	262537	262553	262569	262585	262601	262617	262633	262649	262665	262681	262697	262713	6	2.
54	10. 262713	262729	262745	262761	262777	262793	262809	262825	262841	262857	262873	262889	262905	5	3.
55	10. 262905	262921	262937	262953	262969	262985	263001	263017	263033	263049	263065	263081	263097	4	4.
56	10. 263097	263113	263129	263145	263161	263177	263193	263209	263225	263241	263257	263273	263289	3	1 =
57	10. 263289	263305	263321	263337	263353	263369	263385	263401	263417	263433	263449	263465	263481	2	2.
58	10. 263481	263497	263513	263529	263545	263561	263577	263593	263609	263625	263641	263657	263673	1	3.
59	10. 263673	263689	263705	263721	263737	263753	263769	263785	263801	263817	263833	263849	263865	0	4.
		60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'		
		Co-secant of 33 degrees, or Secant of 123 degrees.													

LOGARITHMIC SECANTS.

Secant of 57 degrees, or Co-secant of 147 degrees.											Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
891	263907	263924	263940	263956	263972	263988	264005	264021	264037	264053	59	1" = 3
886	264102	264118	264134	264151	264167	264183	264199	264216	264232	264248	58	2. 7
280	264297	264313	264329	264345	264362	264378	264394	264410	264427	264443	57	3. 10
475	264492	264508	264524	264540	264557	264573	264589	264605	264622	264638	56	4. 13
670	264687	264703	264719	264735	264752	264768	264784	264800	264817	264833	55	1 = 3
865	264882	264898	264914	264930	264947	264963	264979	264996	265012	265028	54	2. 7
261	265077	265093	265109	265126	265142	265158	265175	265191	265207	265223	53	3. 10
256	265272	265289	265305	265321	265337	265354	265370	265386	265403	265419	52	4. 13
451	265468	265484	265500	265517	265533	265549	265566	265582	265598	265614	51	1 = 3
347	265663	265680	265696	265712	265729	265745	265761	265777	265794	265810	50	2. 7
843	265859	265875	265892	265908	265924	265941	265957	265973	265990	266006	49	3. 10
239	266055	266071	266088	266104	266120	266137	266153	266169	266186	266202	48	4. 13
335	266251	266267	266284	266300	266316	266333	266349	266365	266382	266398	47	1 = 3
531	266447	266463	266480	266496	266512	266529	266545	266561	266578	266594	46	2. 7
527	266643	266660	266676	266692	266709	266725	266741	266758	266774	266790	45	3. 10
523	266840	266856	266872	266889	266905	266921	266938	266954	266971	266987	44	4. 13
320	267036	267052	267069	267085	267102	267118	267134	267151	267167	267183	43	1 = 3
116	267233	267249	267265	267282	267298	267315	267331	267347	267364	267380	42	2. 7
113	267429	267446	267462	267479	267495	267511	267528	267544	267561	267577	41	3. 10
110	267626	267643	267659	267675	267692	267708	267725	267741	267758	267774	40	4. 13
107	267823	267840	267856	267872	267889	267905	267922	267938	267955	267971	39	1 = 3
104	268020	268037	268053	268070	268086	268102	268119	268135	268152	268168	38	2. 7
101	268218	268234	268250	268267	268283	268300	268316	268333	268349	268366	37	3. 10
98	268415	268431	268448	268464	268481	268497	268514	268530	268547	268563	36	4. 13
96	268612	268629	268645	268662	268678	268695	268711	268728	268744	268761	35	1 = 3
94	268810	268826	268843	268859	268876	268892	268909	268925	268942	268958	34	2. 7
91	269008	269024	269041	269057	269074	269090	269107	269123	269140	269156	33	3. 10
89	269206	269222	269239	269255	269272	269288	269305	269321	269338	269354	32	4. 13
87	269404	269420	269437	269453	269470	269486	269503	269519	269536	269552	31	1 = 3
85	269602	269618	269635	269651	269668	269684	269701	269717	269734	269750	30	2. 7
83	269800	269816	269833	269850	269866	269883	269899	269916	269932	269949	29	3. 10
82	269998	270015	270031	270048	270064	270081	270098	270114	270131	270147	28	4. 13
80	270197	270213	270230	270246	270263	270280	270296	270313	270329	270346	27	1 = 3
79	270395	270412	270429	270445	270462	270478	270495	270511	270528	270545	26	2. 7
78	270594	270611	270627	270644	270660	270677	270694	270710	270727	270743	25	3. 10
77	270793	270810	270826	270843	270859	270876	270893	270909	270926	270942	24	4. 13
76	270992	271009	271025	271042	271058	271075	271092	271108	271125	271141	23	1 = 3
75	271191	271208	271224	271241	271258	271274	271291	271307	271324	271341	22	2. 7
74	271391	271407	271424	271440	271457	271474	271490	271507	271523	271540	21	3. 10
73	271590	271607	271623	271640	271656	271673	271690	271706	271723	271740	20	4. 13
73	271789	271806	271823	271839	271856	271873	271889	271906	271923	271939	19	1 = 3
72	271989	272006	272022	272039	272056	272072	272089	272106	272122	272139	18	2. 7
72	272189	272206	272222	272239	272256	272272	272289	272305	272322	272339	17	3. 10
72	272389	272405	272422	272439	272455	272472	272489	272505	272522	272539	16	4. 13
72	272589	272606	272622	272639	272656	272672	272689	272706	272722	272739	15	1 = 3
72	272789	272806	272822	272839	272856	272872	272889	272906	272923	272939	14	2. 7
73	272989	273006	273023	273039	273056	273073	273089	273106	273123	273140	13	3. 10
73	273190	273206	273223	273240	273257	273273	273290	273307	273323	273340	12	4. 13
74	273390	273407	273424	273440	273457	273474	273491	273507	273524	273541	11	1 = 3
74	273591	273608	273624	273641	273658	273675	273691	273708	273725	273742	10	2. 7
75	273792	273809	273825	273842	273859	273875	273892	273909	273926	273942	9	3. 10
76	273993	274009	274026	274043	274060	274076	274093	274110	274127	274144	8	4. 13
77	274194	274211	274227	274244	274261	274278	274294	274311	274328	274345	7	1 = 3
78	274395	274412	274429	274445	274462	274479	274496	274512	274529	274546	6	2. 7
80	274596	274613	274630	274647	274663	274680	274697	274714	274731	274747	5	3. 10
81	274798	274815	274831	274848	274865	274882	274899	274915	274932	274949	4	4. 13
83	274999	275016	275033	275050	275067	275083	275100	275117	275134	275151	3	1 = 3
84	275201	275218	275235	275252	275268	275285	275302	275319	275336	275353	2	2. 7
86	275403	275420	275437	275453	275470	275487	275504	275521	275538	275554	1	3. 10
88	275605	275622	275639	275655	275672	275689	275706	275723	275740	275757	0	4. 13
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.

Co-secant of 32 degrees, or Secant of 122 degrees.

LOGARITHMIC SECANTS.

Minutes	Secant of 58 degrees, or Co-secant of 148 degrees.												Minutes	Proportional Parts
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10.275790	275807	275824	275841	275858	275874	275891	275908	275925	275942	275959	275976	59	1
1	10.275992	276009	276026	276043	276060	276077	276094	276111	276127	276144	276161	276178	58	2
2	10.276195	276212	276229	276245	276262	276279	276296	276313	276330	276347	276364	276380	57	3
3	10.276397	276414	276431	276448	276465	276482	276499	276516	276532	276549	276566	276583	56	4
4	10.276600	276617	276634	276651	276668	276684	276701	276718	276735	276752	276769	276786	55	1
5	10.276803	276820	276837	276853	276870	276887	276904	276921	276938	276955	276972	276989	54	2
6	10.277006	277023	277039	277056	277073	277090	277107	277124	277141	277158	277175	277192	53	3
7	10.277209	277226	277243	277259	277276	277293	277310	277327	277344	277361	277378	277395	52	4
8	10.277412	277429	277446	277463	277480	277497	277513	277530	277547	277564	277581	277598	51	1
9	10.277615	277632	277649	277666	277683	277700	277717	277734	277751	277768	277785	277802	50	2
10	10.277819	277835	277852	277869	277886	277903	277920	277937	277954	277971	277988	278005	49	3
11	10.278022	278039	278056	278073	278090	278107	278124	278141	278158	278175	278192	278209	48	4
12	10.278226	278243	278260	278277	278294	278311	278328	278345	278362	278379	278396	278413	47	1
13	10.278430	278447	278464	278481	278498	278515	278532	278549	278566	278583	278600	278617	46	2
14	10.278634	278651	278668	278685	278702	278719	278736	278753	278770	278787	278804	278821	45	3
15	10.278838	278855	278872	278889	278906	278923	278940	278957	278974	278991	279008	279025	44	4
16	10.279042	279059	279076	279093	279110	279127	279144	279161	279178	279195	279212	279229	43	1
17	10.279246	279263	279280	279297	279314	279331	279348	279365	279382	279399	279417	279434	42	2
18	10.279451	279468	279485	279502	279519	279536	279553	279570	279587	279604	279621	279638	41	3
19	10.279655	279672	279689	279706	279724	279741	279758	279775	279792	279809	279826	279843	40	4
20	10.279860	279877	279894	279911	279928	279945	279962	279979	279997	280014	280031	280048	39	1
21	10.280065	280082	280099	280116	280133	280150	280167	280184	280201	280219	280236	280253	38	2
22	10.280270	280287	280304	280321	280338	280355	280372	280390	280407	280424	280441	280458	37	3
23	10.280475	280492	280509	280526	280543	280561	280578	280595	280612	280629	280646	280663	36	4
24	10.280680	280697	280715	280732	280749	280766	280783	280800	280817	280834	280852	280869	35	1
25	10.280886	280903	280920	280937	280954	280971	280989	281006	281023	281040	281057	281074	34	2
26	10.281091	281108	281126	281143	281160	281177	281194	281211	281228	281246	281263	281280	33	3
27	10.281297	281314	281331	281348	281366	281383	281400	281417	281434	281451	281468	281486	32	4
28	10.281503	281520	281537	281554	281571	281589	281606	281623	281640	281657	281674	281692	31	1
29	10.281709	281726	281743	281760	281777	281795	281812	281829	281846	281863	281880	281898	30	2
30	10.281915	281932	281949	281966	281984	282001	282018	282035	282052	282070	282087	282104	29	3
31	10.282121	282138	282155	282173	282190	282207	282224	282241	282259	282276	282293	282310	28	4
32	10.282327	282344	282362	282379	282396	282413	282431	282448	282465	282482	282499	282517	27	1
33	10.282534	282551	282568	282586	282603	282620	282637	282654	282672	282689	282706	282723	26	2
34	10.282741	282758	282775	282792	282809	282827	282844	282861	282878	282896	282913	282930	25	3
35	10.282947	282965	282982	282999	283016	283033	283051	283068	283085	283102	283120	283137	24	4
36	10.283154	283171	283189	283206	283223	283240	283258	283275	283292	283309	283327	283344	23	1
37	10.283361	283378	283396	283413	283430	283448	283465	283482	283499	283517	283534	283551	22	2
38	10.283568	283586	283603	283620	283637	283655	283672	283689	283707	283724	283741	283758	21	3
39	10.283776	283793	283810	283828	283845	283862	283879	283897	283914	283931	283949	283966	20	4
40	10.283983	284000	284018	284035	284052	284070	284087	284104	284122	284139	284156	284173	19	1
41	10.284191	284208	284225	284243	284260	284277	284295	284312	284329	284346	284364	284381	18	2
42	10.284398	284416	284433	284450	284468	284485	284502	284520	284537	284554	284572	284589	17	3
43	10.284606	284624	284641	284658	284676	284693	284710	284728	284745	284762	284780	284797	16	4
44	10.284814	284832	284849	284866	284884	284901	284918	284936	284953	284970	284988	285005	15	1
45	10.285022	285040	285057	285074	285092	285109	285126	285144	285161	285179	285196	285213	14	2
46	10.285231	285248	285265	285283	285300	285317	285335	285352	285370	285387	285404	285422	13	3
47	10.285439	285456	285474	285491	285509	285526	285543	285561	285578	285595	285613	285630	12	4
48	10.285648	285665	285682	285700	285717	285734	285752	285769	285787	285804	285821	285839	11	1
49	10.285856	285874	285891	285908	285926	285943	285961	285978	285995	286013	286030	286048	10	2
50	10.286065	286082	286100	286117	286135	286152	286169	286187	286204	286222	286239	286257	9	3
51	10.286274	286291	286309	286326	286344	286361	286378	286396	286413	286431	286448	286466	8	4
52	10.286483	286500	286518	286535	286553	286570	286588	286605	286622	286640	286657	286675	7	1
53	10.286692	286710	286727	286745	286762	286779	286797	286814	286832	286849	286867	286884	6	2
54	10.286902	286919	286937	286954	286971	286989	287006	287024	287041	287059	287076	287094	5	3
55	10.287111	287129	287146	287163	287181	287198	287216	287233	287251	287268	287286	287303	4	4
56	10.287321	287338	287356	287373	287391	287408	287426	287443	287461	287478	287496	287513	3	1
57	10.287530	287548	287565	287583	287600	287618	287635	287653	287670	287688	287705	287723	2	2
58	10.287740	287758	287775	287793	287810	287828	287845	287863	287880	287898	287915	287933	1	3
59	10.287950	287968	287985	288003	288020	288038	288056	288073	288091	288108	288126	288143	0	4
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	
Co-secant of 31 degrees, or Secant of 121 degrees.														

LOGARITHMIC SECANTS.

Secant of 59 degrees, or Co-secant of 149 degrees.													Minutes	Proport. parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
10. 288161	288178	288196	288213	288231	288248	288266	288283	288301	288318	288336	288353	59	1" = 4	
10. 288371	288388	288406	288424	288441	288459	288476	288494	288511	288529	288546	288564	58	2. 7	
10. 288581	288599	288616	288634	288652	288669	288687	288704	288722	288739	288757	288774	57	3. 11	
10. 288792	288810	288827	288845	288862	288880	288897	288915	288932	288950	288968	288985	56	4. 14	
10. 289003	289020	289038	289055	289073	289091	289108	289126	289143	289161	289178	289196	55	1 = 4	
10. 289214	289231	289249	289266	289284	289302	289319	289337	289354	289372	289389	289407	54	2. 7	
10. 289425	289442	289460	289477	289495	289513	289530	289548	289565	289583	289601	289618	53	3. 11	
10. 289636	289653	289671	289689	289706	289724	289741	289759	289777	289794	289812	289829	52	4. 14	
10. 289847	289865	289882	289900	289918	289935	289953	289970	289988	290006	290023	290041	51	1 = 4	
10. 290058	290076	290094	290111	290129	290147	290164	290182	290200	290217	290235	290252	50	2. 7	
10. 290270	290288	290305	290323	290341	290358	290376	290394	290411	290429	290446	290464	49	3. 11	
10. 290482	290499	290517	290535	290552	290570	290588	290605	290623	290641	290658	290676	48	4. 14	
10. 290694	290711	290729	290747	290764	290782	290800	290817	290835	290853	290870	290888	47	1 = 4	
10. 290906	290923	290941	290959	290976	290994	291012	291029	291047	291065	291082	291100	46	2. 7	
10. 291118	291135	291153	291171	291188	291206	291224	291242	291259	291277	291295	291312	45	3. 11	
10. 291330	291348	291365	291383	291401	291419	291436	291454	291472	291489	291507	291525	44	4. 14	
10. 291542	291560	291578	291596	291613	291631	291649	291666	291684	291702	291720	291737	43	1 = 4	
10. 291755	291773	291790	291808	291826	291844	291861	291879	291897	291915	291932	291950	42	2. 7	
10. 291968	291985	292003	292021	292039	292056	292074	292092	292110	292127	292145	292163	41	3. 11	
10. 292181	292198	292216	292234	292252	292269	292287	292305	292322	292340	292358	292376	40	4. 14	
10. 292394	292411	292429	292447	292465	292482	292500	292518	292536	292553	292571	292589	39	1 = 4	
10. 292607	292624	292642	292660	292678	292695	292713	292731	292749	292767	292784	292802	38	2. 7	
10. 292820	292838	292855	292873	292891	292909	292927	292944	292962	292980	292998	293015	37	3. 11	
10. 293033	293051	293069	293087	293104	293122	293140	293158	293176	293193	293211	293229	36	4. 14	
10. 293247	293265	293282	293300	293318	293336	293354	293371	293389	293407	293425	293443	35	1 = 4	
10. 293461	293478	293496	293514	293532	293550	293567	293585	293603	293621	293639	293657	34	2. 7	
10. 293674	293692	293710	293728	293746	293763	293781	293799	293817	293835	293853	293870	33	3. 11	
10. 293888	293906	293924	293942	293960	293978	293995	294013	294031	294049	294067	294085	32	4. 14	
10. 294102	294120	294138	294156	294174	294192	294210	294227	294245	294263	294281	294299	31	1 = 4	
10. 294317	294335	294352	294370	294388	294406	294424	294442	294460	294477	294495	294513	30	2. 7	
10. 294531	294549	294567	294585	294603	294620	294638	294656	294674	294692	294710	294728	29	3. 11	
10. 294746	294763	294781	294799	294817	294835	294853	294871	294889	294907	294925	294942	28	4. 14	
10. 294966	294984	294999	295014	295032	295050	295068	295086	295103	295121	295139	295157	27	1 = 4	
10. 295175	295193	295211	295229	295247	295265	295283	295301	295318	295336	295354	295372	26	2. 7	
10. 295390	295408	295426	295444	295462	295480	295498	295516	295533	295551	295569	295587	25	3. 11	
10. 295602	295620	295638	295656	295674	295692	295710	295728	295746	295764	295782	295800	24	4. 14	
10. 295820	295838	295856	295874	295892	295910	295928	295946	295964	295982	296000	296018	23	1 = 4	
10. 296036	296054	296072	296090	296108	296126	296144	296162	296180	296197	296215	296233	22	2. 7	
10. 296251	296269	296287	296305	296323	296341	296359	296377	296395	296413	296431	296449	21	3. 11	
10. 296467	296485	296503	296521	296539	296557	296575	296593	296611	296629	296647	296665	20	4. 14	
10. 296683	296701	296719	296737	296755	296773	296791	296809	296827	296845	296863	296881	19	1 = 4	
10. 296899	296917	296935	296953	296971	296989	297007	297025	297043	297061	297079	297097	18	2. 7	
10. 297115	297133	297151	297169	297187	297205	297223	297241	297259	297277	297295	297313	17	3. 11	
10. 297331	297349	297367	297385	297403	297421	297439	297457	297476	297494	297512	297530	16	4. 14	
10. 297548	297566	297584	297602	297620	297638	297656	297674	297692	297710	297728	297746	15	1 = 4	
10. 297764	297782	297800	297818	297836	297854	297873	297891	297909	297927	297945	297963	14	2. 7	
10. 297981	297999	298017	298035	298053	298071	298089	298107	298125	298144	298162	298180	13	3. 11	
10. 298198	298216	298234	298252	298270	298288	298306	298324	298342	298360	298379	298397	12	4. 14	
10. 298415	298433	298451	298469	298487	298505	298523	298541	298559	298578	298596	298614	11	1 = 4	
10. 298632	298650	298668	298686	298704	298722	298740	298759	298777	298795	298813	298831	10	2. 7	
10. 298849	298867	298885	298903	298922	298940	298958	298976	298994	299012	299030	299048	9	3. 11	
10. 299067	299085	299103	299121	299139	299157	299175	299193	299212	299230	299248	299266	8	4. 14	
10. 299284	299302	299320	299338	299357	299375	299393	299411	299429	299447	299466	299484	7	1 = 4	
10. 299502	299520	299538	299556	299574	299593	299611	299629	299647	299665	299683	299702	6	2. 7	
10. 299720	299738	299756	299774	299792	299811	299829	299847	299865	299883	299901	299920	5	3. 11	
10. 299938	299956	299974	299992	300010	300029	300047	300065	300083	300101	300120	300138	4	4. 15	
10. 300156	300174	300192	300210	300229	300247	300265	300283	300301	300320	300338	300356	3	1 = 4	
10. 300374	300392	300411	300429	300447	300465	300483	300502	300520	300538	300556	300574	2	2. 7	
10. 300593	300611	300629	300647	300665	300684	300702	300720	300738	300757	300775	300793	1	3. 11	
10. 300811	300829	300848	300866	300884	300902	300921	300939	300957	300975	300993	301012	0	4. 15	
60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°		Minutes	Proport. parts.
Co-secant of 30 degrees, or Secant of 120 degrees.														

LOGARITHMIC SECANTS.

Minutes		Secant of 60 degrees, or Co-secant of 150 degrees.											Minutes	Proport. parts.
		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
0	10.301030	301048	301066	301085	301103	301121	301139	301158	301176	301194	301212	301231	59	1 = 4
1	10.301249	301267	301285	301304	301322	301340	301358	301377	301395	301413	301431	301450	58	2 = 4
2	10.301468	301486	301504	301523	301541	301559	301577	301596	301614	301632	301651	301669	57	3 = 4
3	10.301687	301705	301724	301742	301760	301778	301797	301815	301833	301852	301870	301888	56	4 = 4
4	10.301906	301925	301943	301961	301980	301998	302016	302034	302053	302071	302089	302108	55	1 = 4
5	10.302126	302144	302162	302181	302199	302217	302236	302254	302272	302291	302309	302327	54	2 = 4
6	10.302345	302364	302382	302400	302419	302437	302455	302474	302492	302510	302529	302547	53	3 = 4
7	10.302565	302584	302602	302620	302639	302657	302675	302694	302712	302730	302748	302767	52	4 = 4
8	10.302785	302803	302822	302840	302858	302877	302895	302914	302932	302950	302969	302987	51	1 = 4
9	10.303005	303024	303042	303060	303079	303097	303115	303134	303152	303170	303189	303207	50	2 = 4
10	10.303225	303244	303262	303281	303299	303317	303336	303354	303372	303391	303409	303427	49	3 = 4
11	10.303446	303464	303483	303501	303519	303538	303556	303574	303593	303611	303630	303648	48	4 = 4
12	10.303666	303685	303703	303721	303740	303758	303777	303795	303813	303832	303850	303869	47	1 = 4
13	10.303887	303905	303924	303942	303961	303979	303997	304016	304034	304053	304071	304089	46	2 = 4
14	10.304108	304126	304145	304163	304181	304200	304218	304237	304255	304273	304292	304310	45	3 = 4
15	10.304329	304347	304366	304384	304402	304421	304439	304458	304476	304495	304513	304531	44	4 = 4
16	10.304550	304568	304587	304605	304624	304642	304660	304679	304697	304716	304734	304753	43	1 = 4
17	10.304771	304790	304808	304826	304845	304863	304882	304900	304919	304937	304956	304974	42	2 = 4
18	10.304993	305011	305029	305048	305066	305085	305103	305122	305140	305159	305177	305196	41	3 = 4
19	10.305214	305233	305251	305269	305288	305306	305325	305343	305362	305380	305399	305417	40	4 = 4
20	10.305436	305454	305473	305491	305510	305528	305547	305565	305584	305602	305621	305639	39	1 = 4
21	10.305658	305676	305695	305713	305732	305750	305769	305787	305806	305824	305843	305861	38	2 = 4
22	10.305880	305898	305917	305935	305954	305972	305991	306009	306028	306046	306065	306083	37	3 = 4
23	10.306102	306120	306139	306157	306176	306194	306213	306231	306250	306269	306287	306306	36	4 = 4
24	10.306324	306343	306361	306380	306398	306417	306435	306454	306472	306491	306509	306528	35	1 = 4
25	10.306547	306565	306584	306602	306621	306639	306658	306676	306695	306714	306732	306751	34	2 = 4
26	10.306769	306788	306806	306825	306843	306862	306881	306899	306918	306936	306955	306973	33	3 = 4
27	10.306992	307011	307029	307048	307066	307085	307103	307122	307141	307159	307178	307196	32	4 = 4
28	10.307215	307233	307252	307271	307289	307308	307326	307345	307364	307382	307401	307419	31	1 = 4
29	10.307438	307457	307475	307494	307512	307531	307550	307568	307587	307605	307624	307643	30	2 = 4
30	10.307661	307680	307698	307717	307736	307754	307773	307791	307810	307829	307847	307866	29	3 = 4
31	10.307884	307903	307922	307940	307959	307978	307996	308015	308033	308052	308071	308089	28	4 = 4
32	10.308108	308127	308145	308164	308183	308201	308220	308238	308257	308276	308294	308313	27	1 = 4
33	10.308332	308350	308369	308388	308406	308425	308444	308462	308481	308500	308518	308537	26	2 = 4
34	10.308555	308574	308593	308611	308630	308649	308667	308686	308705	308723	308742	308761	25	3 = 4
35	10.308779	308798	308817	308835	308854	308873	308892	308910	308929	308948	308966	308985	24	4 = 4
36	10.309004	309022	309041	309060	309078	309097	309116	309134	309153	309172	309190	309209	23	1 = 4
37	10.309228	309247	309265	309284	309303	309321	309340	309359	309377	309396	309415	309434	22	2 = 4
38	10.309452	309471	309490	309508	309527	309546	309565	309583	309602	309621	309639	309658	21	3 = 4
39	10.309677	309696	309714	309733	309752	309771	309789	309808	309827	309846	309864	309883	20	4 = 4
40	10.309902	309920	309939	309958	309977	309995	310014	310033	310052	310070	310089	310108	19	1 = 4
41	10.310127	310145	310164	310183	310202	310220	310239	310258	310277	310295	310314	310333	18	2 = 4
42	10.310352	310370	310389	310408	310427	310445	310464	310483	310502	310520	310539	310558	17	3 = 4
43	10.310577	310596	310614	310633	310652	310671	310689	310708	310727	310746	310765	310783	16	4 = 4
44	10.310802	310821	310840	310858	310877	310896	310915	310934	310952	310971	310990	311009	15	1 = 4
45	10.311028	311046	311065	311084	311103	311122	311140	311159	311178	311197	311216	311234	14	2 = 4
46	10.311253	311272	311291	311310	311329	311347	311366	311385	311404	311423	311441	311460	13	3 = 4
47	10.311479	311498	311517	311536	311554	311573	311592	311611	311630	311649	311667	311686	12	4 = 4
48	10.311705	311724	311743	311762	311780	311799	311818	311837	311856	311875	311893	311912	11	1 = 4
49	10.311931	311950	311969	311988	312007	312025	312044	312063	312082	312101	312120	312139	10	2 = 4
50	10.312157	312176	312195	312214	312233	312252	312271	312290	312308	312327	312346	312365	9	3 = 4
51	10.312384	312403	312422	312440	312459	312478	312497	312516	312535	312554	312573	312592	8	4 = 4
52	10.312610	312629	312648	312667	312686	312705	312724	312743	312762	312780	312799	312818	7	1 = 4
53	10.312837	312856	312875	312894	312913	312932	312951	312970	312988	313007	313026	313045	6	2 = 4
54	10.313064	313083	313102	313121	313140	313159	313178	313197	313215	313234	313253	313272	5	3 = 4
55	10.313291	313310	313329	313348	313367	313386	313405	313424	313443	313462	313480	313499	4	4 = 4
56	10.313518	313537	313556	313575	313594	313613	313632	313651	313670	313689	313708	313727	3	1 = 4
57	10.313746	313765	313784	313803	313822	313840	313859	313878	313897	313916	313935	313954	2	2 = 4
58	10.313973	313992	314011	314030	314049	314068	314087	314106	314125	314144	314163	314182	1	3 = 4
59	10.314201	314220	314239	314258	314277	314296	314315	314334	314353	314372	314391	314410	0	4 = 4
		60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	
Co-secant of 29 degrees, or Secant of 119 degrees.														

LOGARITHMIC SECANTS.

Secant of 61 degrees, or Co-secant of 151 degrees.												Minutes	Proport. parts.
1°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
4429	314448	314467	314486	314505	314524	314543	314562	314581	314600	314619	314638	59	1" = 4
4657	314676	314695	314714	314733	314752	314771	314790	314809	314828	314847	314866	58	2. 8
4885	314904	314923	314942	314961	314980	314999	315018	315037	315056	315075	315094	57	3. 11
5113	315132	315151	315170	315189	315208	315227	315246	315265	315284	315303	315322	56	4. 15
5342	315361	315380	315399	315418	315437	315456	315475	315494	315513	315532	315551	55	1 = 4
5570	315589	315608	315627	315646	315665	315685	315704	315723	315742	315761	315780	54	2. 8
5799	315818	315837	315856	315875	315894	315913	315933	315952	315971	315990	316009	53	3. 11
6028	316047	316066	316085	316104	316123	316142	316162	316181	316200	316219	316238	52	4. 15
6257	316276	316295	316314	316333	316352	316372	316391	316410	316429	316448	316467	51	1 = 4
6486	316505	316524	316544	316563	316582	316601	316620	316639	316658	316677	316697	50	2. 8
6716	316735	316754	316773	316792	316811	316830	316850	316869	316888	316907	316926	49	3. 11
6945	316964	316983	317002	317021	317041	317060	317079	317098	317117	317137	317156	48	4. 15
7175	317194	317213	317232	317252	317271	317290	317309	317328	317347	317366	317386	47	1 = 4
7405	317424	317443	317462	317481	317501	317520	317539	317558	317577	317596	317616	46	2. 8
7635	317654	317673	317692	317712	317731	317750	317769	317788	317807	317827	317846	45	3. 12
7865	317884	317903	317923	317942	317961	317980	317999	318019	318038	318057	318076	44	4. 15
8095	318115	318134	318153	318172	318191	318211	318230	318249	318268	318287	318307	43	1 = 4
8326	318345	318364	318384	318403	318422	318441	318460	318480	318499	318518	318537	42	2. 8
8557	318576	318595	318614	318633	318653	318672	318691	318710	318730	318749	318768	41	3. 12
8787	318807	318826	318845	318864	318884	318903	318922	318941	318961	318980	318999	40	4. 15
9018	319038	319057	319076	319095	319115	319134	319153	319172	319192	319211	319230	39	1 = 4
9250	319269	319288	319307	319327	319346	319365	319384	319404	319423	319442	319462	38	2. 8
9481	319500	319519	319539	319558	319577	319597	319616	319635	319654	319674	319693	37	3. 12
9712	319732	319751	319770	319789	319809	319828	319847	319867	319886	319905	319925	36	4. 15
9944	319963	319983	320002	320021	320040	320060	320079	320098	320118	320137	320156	35	1 = 4
10176	320195	320214	320234	320253	320272	320292	320311	320330	320350	320369	320388	34	2. 8
10408	320427	320446	320466	320485	320504	320524	320543	320562	320582	320601	320620	33	3. 12
10640	320659	320678	320698	320717	320737	320756	320775	320795	320814	320833	320853	32	4. 15
10872	320891	320911	320930	320949	320969	320988	321008	321027	321046	321066	321085	31	1 = 4
1104	321124	321143	321163	321182	321201	321221	321240	321259	321279	321298	321318	30	2. 8
11337	321356	321376	321395	321415	321434	321453	321473	321492	321512	321531	321550	29	3. 12
11570	321589	321609	321628	321647	321667	321686	321706	321725	321744	321764	321783	28	4. 16
11803	321822	321842	321861	321880	321900	321919	321939	321958	321978	321997	322016	27	1 = 4
12036	322055	322075	322094	322114	322133	322152	322172	322191	322211	322230	322250	26	2. 8
12269	322288	322308	322327	322347	322366	322386	322405	322425	322444	322464	322483	25	3. 12
12502	322522	322541	322561	322580	322600	322619	322639	322658	322678	322697	322717	24	4. 16
12736	322755	322775	322794	322814	322833	322853	322872	322892	322911	322931	322950	23	1 = 4
12970	322989	323009	323028	323048	323067	323087	323106	323126	323145	323165	323184	22	2. 8
13204	323223	323243	323262	323282	323301	323321	323340	323360	323379	323399	323418	21	3. 12
13438	323457	323477	323496	323516	323535	323555	323574	323594	323613	323633	323652	20	4. 16
13672	323691	323711	323730	323750	323770	323789	323809	323828	323848	323867	323887	19	1 = 4
13906	323926	323945	323965	323984	324004	324024	324043	324063	324082	324102	324121	18	2. 8
14141	324160	324180	324199	324219	324239	324258	324278	324297	324317	324336	324356	17	3. 12
14375	324395	324415	324434	324454	324473	324493	324512	324532	324552	324571	324591	16	4. 16
14610	324630	324650	324669	324689	324708	324728	324747	324767	324787	324806	324826	15	1 = 4
14845	324865	324885	324904	324924	324943	324963	324983	325002	325022	325041	325061	14	2. 8
15081	325100	325120	325139	325159	325179	325198	325218	325237	325257	325277	325296	13	3. 12
15316	325336	325355	325375	325394	325414	325434	325453	325473	325493	325512	325532	12	4. 16
15551	325571	325591	325610	325630	325650	325669	325689	325709	325728	325748	325768	11	1 = 4
15787	325807	325826	325846	325866	325885	325905	325925	325944	325964	325984	326003	10	2. 8
16023	326043	326062	326082	326102	326121	326141	326161	326180	326200	326220	326239	9	3. 12
16259	326279	326298	326318	326338	326357	326377	326397	326416	326436	326456	326475	8	4. 16
16495	326515	326535	326554	326574	326594	326613	326633	326653	326672	326692	326712	7	1 = 4
16732	326751	326771	326791	326810	326830	326850	326870	326889	326909	326929	326948	6	2. 8
16968	326988	327008	327027	327047	327067	327086	327106	327126	327146	327165	327185	5	3. 12
17205	327224	327244	327264	327284	327304	327323	327343	327363	327382	327402	327422	4	4. 16
17442	327461	327481	327501	327521	327540	327560	327580	327600	327619	327639	327659	3	1 = 4
17679	327698	327718	327738	327758	327777	327797	327817	327837	327856	327876	327896	2	2. 8
17916	327936	327955	327975	327995	328015	328034	328054	328074	328094	328114	328133	1	3. 12
18153	328173	328193	328213	328232	328252	328272	328292	328311	328331	328351	328371	0	4. 16
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°			
Co-secant of 28 degrees, or Secant of 118 degrees.												Minutes	Proport. parts.

LOGARITHMIC SECANTS.

Secant of 62 degrees, or Co-secant of 152 degrees.															
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes		
0	10.328391	328410	328430	328450	328470	328490	328509	328529	328549	328569	328589	328609	59		
1	10.328628	328648	328668	328688	328708	328727	328747	328767	328787	328807	328827	328846	58		
2	10.328866	328886	328906	328926	328946	328965	328985	329005	329025	329045	329065	329084	57		
3	10.329104	329124	329144	329164	329184	329203	329223	329243	329263	329283	329303	329323	56		
4	10.329342	329362	329382	329402	329422	329442	329462	329481	329501	329521	329541	329561	55		
5	10.329581	329601	329620	329640	329660	329680	329700	329720	329740	329760	329779	329799	54		
6	10.329819	329839	329859	329879	329899	329919	329939	329958	329978	329998	330018	330038	53		
7	10.330058	330078	330098	330118	330138	330157	330177	330197	330217	330237	330257	330277	52		
8	10.330297	330317	330337	330357	330376	330396	330416	330436	330456	330476	330496	330516	51		
9	10.330536	330556	330576	330596	330615	330635	330655	330675	330695	330715	330735	330755	50		
10	10.330775	330795	330815	330835	330855	330875	330895	330915	330935	330955	330974	330994	49		
11	10.331014	331034	331054	331074	331094	331114	331134	331154	331174	331194	331214	331234	48		
12	10.331254	331274	331294	331314	331334	331354	331374	331394	331414	331434	331454	331474	47		
13	10.331494	331514	331534	331554	331573	331593	331613	331633	331653	331673	331693	331713	46		
14	10.331733	331753	331773	331793	331813	331833	331853	331873	331893	331913	331933	331953	45		
15	10.331973	331993	332013	332033	332053	332073	332094	332114	332134	332154	332174	332194	44		
16	10.332214	332234	332254	332274	332294	332314	332334	332354	332374	332394	332414	332434	43		
17	10.332454	332474	332494	332514	332534	332554	332574	332594	332614	332634	332654	332674	42		
18	10.332695	332715	332735	332755	332775	332795	332815	332835	332855	332875	332895	332915	41		
19	10.332935	332955	332975	332995	333016	333036	333056	333076	333096	333116	333136	333156	40		
20	10.333176	333196	333216	333236	333256	333277	333297	333317	333337	333357	333377	333397	39		
21	10.333417	333437	333457	333477	333498	333518	333538	333558	333578	333598	333618	333638	38		
22	10.333658	333679	333699	333719	333739	333759	333779	333799	333819	333839	333859	333879	37		
23	10.333900	333920	333940	333960	333980	334000	334021	334041	334061	334081	334101	334121	36		
24	10.334141	334162	334182	334202	334222	334242	334262	334282	334303	334323	334343	334363	35		
25	10.334383	334403	334423	334444	334464	334484	334504	334524	334544	334565	334585	334605	34		
26	10.334625	334645	334665	334686	334706	334726	334746	334766	334786	334807	334827	334847	33		
27	10.334867	334887	334907	334928	334948	334968	334988	335008	335029	335049	335069	335089	32		
28	10.335109	335129	335150	335170	335190	335210	335231	335251	335271	335291	335311	335331	31		
29	10.335352	335372	335392	335412	335433	335453	335473	335493	335513	335534	335554	335574	30		
30	10.335594	335615	335635	335655	335675	335695	335716	335736	335756	335776	335797	335817	29		
31	10.335837	335857	335878	335898	335918	335938	335959	335979	335999	336019	336040	336060	28		
32	10.336080	336100	336121	336141	336161	336181	336202	336222	336242	336262	336283	336303	27		
33	10.336323	336343	336364	336384	336404	336424	336444	336465	336485	336505	336526	336546	26		
34	10.336566	336587	336607	336627	336648	336668	336688	336708	336729	336749	336769	336790	25		
35	10.336808	336828	336848	336868	336888	336908	336928	336948	336968	336988	337008	337028	24		
36	10.337051	337071	337091	337111	337131	337151	337171	337191	337211	337231	337251	337271	23		
37	10.337293	337313	337333	337353	337373	337393	337413	337433	337453	337473	337493	337513	22		
38	10.337535	337555	337575	337595	337615	337635	337655	337675	337695	337715	337735	337755	21		
39	10.337778	337798	337818	337838	337858	337878	337898	337918	337938	337958	337978	337998	20		
40	10.338020	338040	338061	338081	338101	338121	338141	338161	338181	338201	338221	338241	19		
41	10.338262	338282	338302	338322	338342	338362	338382	338402	338422	338442	338462	338482	18		
42	10.338504	338524	338544	338564	338584	338604	338624	338644	338664	338684	338704	338724	17		
43	10.338746	338766	338786	338806	338826	338846	338866	338886	338906	338926	338946	338966	16		
44	10.339000	339020	339040	339060	339080	339101	339121	339141	339161	339181	339201	339221	15		
45	10.339242	339262	339282	339302	339322	339342	339362	339382	339402	339422	339442	339462	14		
46	10.339484	339504	339524	339544	339564	339584	339604	339624	339644	339664	339684	339704	13		
47	10.339725	339745	339765	339786	339806	339827	339847	339867	339887	339907	339927	339947	12		
48	10.339967	340001	340021	340041	340061	340081	340101	340121	340141	340161	340181	340201	11		
49	10.340207	340227	340247	340267	340287	340307	340327	340347	340367	340387	340407	340427	10		
50	10.340448	340468	340488	340508	340528	340548	340568	340588	340608	340628	340647	340667	9		
51	10.340689	340709	340729	340749	340769	340789	340809	340829	340849	340869	340889	340909	8		
52	10.340929	340949	340969	340989	341009	341029	341049	341069	341089	341109	341129	341149	7		
53	10.341170	341190	341210	341230	341250	341270	341290	341310	341330	341350	341370	341390	6		
54	10.341411	341431	341451	341471	341491	341511	341531	341551	341571	341591	341611	341631	5		
55	10.341652	341672	341692	341712	341732	341752	341772	341792	341812	341832	341852	341872	4		
56	10.341893	341913	341933	341953	341973	341993	342013	342033	342053	342073	342093	342113	3		
57	10.342134	342154	342174	342194	342214	342234	342254	342274	342294	342314	342334	342354	2		
58	10.342375	342395	342415	342435	342455	342475	342495	342515	342535	342555	342575	342595	1		
59	10.342616	342636	342656	342676	342696	342716	342736	342756	342776	342796	342816	342836	0		
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes		
Co-secant of 27 degrees, or Secant of 117 degrees.															

LOGARITHMIC SECANTS.

Secant of 63 degrees, or Co-secant of 153 degrees.												Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
53	342974	342995	343015	343036	343057	343077	343098	343119	343139	343160	343181	59	1" = 4
54	343222	343243	343263	343284	343305	343325	343346	343367	343387	343408	343429	58	2. 8
55	343470	343491	343511	343532	343553	343574	343594	343615	343636	343656	343677	57	3. 12
56	343719	343739	343760	343781	343801	343822	343843	343863	343884	343905	343926	56	4. 17
57	343967	343988	344009	344029	344050	344071	344091	344112	344133	344154	344174	55	1" = 4
58	344421	344442	344463	344484	344505	344525	344546	344567	344588	344609	344629	54	2. 8
59	344875	344896	344917	344938	344958	344979	345000	345021	345042	345063	345084	53	3. 12
60	345333	345354	345375	345396	345417	345438	345459	345480	345501	345522	345543	52	4. 17
61	345792	345813	345834	345855	345876	345897	345918	345939	345960	345981	346002	51	1" = 4
62	346252	346273	346294	346315	346336	346357	346378	346399	346420	346441	346462	50	2. 8
63	346712	346733	346754	346775	346796	346817	346838	346859	346880	346901	346922	49	3. 12
64	347172	347193	347214	347235	347256	347277	347298	347319	347340	347361	347382	48	4. 17
65	347642	347663	347684	347705	347726	347747	347768	347789	347810	347831	347852	47	1" = 4
66	348102	348123	348144	348165	348186	348207	348228	348249	348270	348291	348312	46	2. 8
67	348572	348593	348614	348635	348656	348677	348698	348719	348740	348761	348782	45	3. 12
68	349042	349063	349084	349105	349126	349147	349168	349189	349210	349231	349252	44	4. 17
69	349512	349533	349554	349575	349596	349617	349638	349659	349680	349701	349722	43	1" = 4
70	349982	350003	350024	350045	350066	350087	350108	350129	350150	350171	350192	42	2. 8
71	350452	350473	350494	350515	350536	350557	350578	350599	350620	350641	350662	41	3. 12
72	350922	350943	350964	350985	351006	351027	351048	351069	351090	351111	351132	40	4. 17
73	351402	351423	351444	351465	351486	351507	351528	351549	351570	351591	351612	39	1" = 4
74	351872	351893	351914	351935	351956	351977	351998	352019	352040	352061	352082	38	2. 8
75	352352	352373	352394	352415	352436	352457	352478	352499	352520	352541	352562	37	3. 12
76	352832	352853	352874	352895	352916	352937	352958	352979	353000	353021	353042	36	4. 17
77	353312	353333	353354	353375	353396	353417	353438	353459	353480	353501	353522	35	1" = 4
78	353792	353813	353834	353855	353876	353897	353918	353939	353960	353981	354002	34	2. 8
79	354272	354293	354314	354335	354356	354377	354398	354419	354440	354461	354482	33	3. 12
80	354752	354773	354794	354815	354836	354857	354878	354899	354920	354941	354962	32	4. 17
81	355232	355253	355274	355295	355316	355337	355358	355379	355400	355421	355442	31	1" = 4
82	355722	355743	355764	355785	355806	355827	355848	355869	355890	355911	355932	30	2. 8
83	356202	356223	356244	356265	356286	356307	356328	356349	356370	356391	356412	29	3. 12
84	356682	356703	356724	356745	356766	356787	356808	356829	356850	356871	356892	28	4. 17
85	357162	357183	357204	357225	357246	357267	357288	357309	357330	357351	357372	27	1" = 4
86	357652	357673	357694	357715	357736	357757	357778	357799	357820	357841	357862	26	2. 8
87	358132	358153	358174	358195	358216	358237	358258	358279	358300	358321	358342	25	3. 12
88	358622	358643	358664	358685	358706	358727	358748	358769	358790	358811	358832	24	4. 17
89	359102	359123	359144	359165	359186	359207	359228	359249	359270	359291	359312	23	1" = 4
90	359592	359613	359634	359655	359676	359697	359718	359739	359760	359781	359802	22	2. 8
91	360072	360093	360114	360135	360156	360177	360198	360219	360240	360261	360282	21	3. 12
92	360562	360583	360604	360625	360646	360667	360688	360709	360730	360751	360772	20	4. 17
93	361042	361063	361084	361105	361126	361147	361168	361189	361210	361231	361252	19	1" = 4
94	361532	361553	361574	361595	361616	361637	361658	361679	361700	361721	361742	18	2. 8
95	361812	361833	361854	361875	361896	361917	361938	361959	361980	362001	362022	17	3. 12
96	362292	362313	362334	362355	362376	362397	362418	362439	362460	362481	362502	16	4. 17
97	362782	362803	362824	362845	362866	362887	362908	362929	362950	362971	362992	15	1" = 4
98	363272	363293	363314	363335	363356	363377	363398	363419	363440	363461	363482	14	2. 8
99	363762	363783	363804	363825	363846	363867	363888	363909	363930	363951	363972	13	3. 12
100	364252	364273	364294	364315	364336	364357	364378	364399	364420	364441	364462	12	4. 17
101	364742	364763	364784	364805	364826	364847	364868	364889	364910	364931	364952	11	1" = 4
102	365232	365253	365274	365295	365316	365337	365358	365379	365400	365421	365442	10	2. 8
103	365722	365743	365764	365785	365806	365827	365848	365869	365890	365911	365932	9	3. 12
104	366202	366223	366244	366265	366286	366307	366328	366349	366370	366391	366412	8	4. 17
105	366682	366703	366724	366745	366766	366787	366808	366829	366850	366871	366892	7	1" = 4
106	367162	367183	367204	367225	367246	367267	367288	367309	367330	367351	367372	6	2. 8
107	367652	367673	367694	367715	367736	367757	367778	367799	367820	367841	367862	5	3. 12
108	368132	368153	368174	368195	368216	368237	368258	368279	368300	368321	368342	4	4. 17
109	368622	368643	368664	368685	368706	368727	368748	368769	368790	368811	368832	3	1" = 4
110	369102	369123	369144	369165	369186	369207	369228	369249	369270	369291	369312	2	2. 8
111	369592	369613	369634	369655	369676	369697	369718	369739	369760	369781	369802	1	3. 12
112	370072	370093	370114	370135	370156	370177	370198	370219	370240	370261	370282	0	4. 17
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"		Minutes	Proport. parts.

Co-secant of 26 degrees, or Secant of 116 degrees.

LOGARITHMIC SECANTS.

Secant of 64 degrees, or Co-secant of 154 degrees.														Minutes	Proportional parts.
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
0	10.358158	358180	358201	358223	358244	358266	358288	358309	358331	358352	358374	358396	59	1 =	
1	10.358417	358439	358460	358482	358504	358525	358547	358568	358590	358612	358633	358655	58	2 =	
2	10.358676	358698	358720	358741	358763	358785	358806	358828	358849	358871	358893	358914	57	3 =	
3	10.358936	358958	358979	359001	359022	359044	359066	359087	359109	359131	359152	359174	56	4 =	
4	10.359196	359217	359239	359261	359282	359304	359326	359347	359369	359390	359412	359434	55	1 =	
5	10.359455	359477	359499	359520	359542	359564	359585	359607	359629	359651	359672	359694	54	2 =	
6	10.359716	359737	359759	359781	359802	359824	359846	359867	359889	359911	359932	359954	53	3 =	
7	10.359976	359998	360019	360041	360063	360084	360106	360128	360149	360171	360193	360215	52	4 =	
8	10.360236	360258	360280	360301	360323	360345	360367	360388	360410	360432	360453	360475	51	1 =	
9	10.360497	360519	360540	360562	360584	360606	360627	360649	360671	360693	360714	360736	50	2 =	
10	10.360758	360780	360801	360823	360845	360867	360888	360910	360932	360954	360975	360997	49	3 =	
11	10.361019	361041	361062	361084	361106	361128	361149	361171	361193	361215	361236	361258	48	4 =	
12	10.361280	361302	361324	361345	361367	361389	361411	361433	361454	361476	361498	361520	47	1 =	
13	10.361541	361563	361585	361607	361629	361650	361672	361694	361716	361738	361759	361781	46	2 =	
14	10.361803	361825	361847	361869	361890	361912	361934	361956	361978	361999	362021	362043	45	3 =	
15	10.362065	362087	362109	362130	362152	362174	362196	362218	362240	362261	362283	362305	44	4 =	
16	10.362327	362349	362371	362392	362414	362436	362458	362480	362502	362524	362545	362567	43	1 =	
17	10.362589	362611	362633	362655	362677	362698	362720	362742	362764	362786	362808	362830	42	2 =	
18	10.362851	362873	362895	362917	362939	362961	362983	363005	363027	363048	363070	363092	41	3 =	
19	10.363114	363136	363158	363180	363202	363224	363245	363267	363289	363311	363333	363355	40	4 =	
20	10.363377	363399	363421	363443	363465	363486	363508	363530	363552	363574	363596	363618	39	1 =	
21	10.363640	363662	363684	363706	363728	363750	363771	363793	363815	363837	363859	363881	38	2 =	
22	10.363903	363925	363947	363969	363991	364013	364035	364057	364079	364101	364123	364144	37	3 =	
23	10.364166	364188	364210	364232	364254	364276	364298	364320	364342	364364	364386	364408	36	4 =	
24	10.364430	364452	364474	364496	364518	364540	364562	364584	364606	364628	364650	364672	35	1 =	
25	10.364694	364716	364738	364760	364782	364804	364826	364848	364870	364892	364914	364936	34	2 =	
26	10.364958	364980	365002	365024	365046	365068	365090	365112	365134	365156	365178	365200	33	3 =	
27	10.365222	365244	365266	365288	365310	365332	365354	365376	365398	365420	365442	365464	32	4 =	
28	10.365486	365508	365530	365552	365574	365596	365619	365641	365663	365685	365707	365729	31	1 =	
29	10.365751	365773	365795	365817	365839	365861	365883	365905	365927	365949	365971	365994	30	2 =	
30	10.366016	366038	366060	366082	366104	366126	366148	366170	366192	366214	366236	366258	29	3 =	
31	10.366281	366303	366325	366347	366369	366391	366413	366435	366457	366479	366502	366524	28	4 =	
32	10.366546	366568	366590	366612	366634	366656	366678	366700	366723	366745	366767	366789	27	1 =	
33	10.366811	366833	366855	366877	366900	366922	366944	366966	366988	367010	367032	367054	26	2 =	
34	10.367077	367099	367121	367143	367165	367187	367209	367232	367254	367276	367298	367320	25	3 =	
35	10.367342	367365	367387	367409	367431	367453	367475	367497	367520	367542	367564	367586	24	4 =	
36	10.367608	367631	367653	367675	367697	367719	367741	367764	367786	367808	367830	367852	23	1 =	
37	10.367874	367897	367919	367941	367963	367985	368008	368030	368052	368074	368096	368119	22	2 =	
38	10.368141	368163	368185	368207	368230	368252	368274	368296	368319	368341	368363	368385	21	3 =	
39	10.368407	368430	368452	368474	368496	368519	368541	368563	368585	368607	368630	368652	20	4 =	
40	10.368674	368696	368719	368741	368763	368785	368808	368830	368852	368874	368897	368919	19	1 =	
41	10.368941	368963	368986	369008	369030	369052	369075	369097	369119	369141	369164	369186	18	2 =	
42	10.369208	369231	369253	369275	369297	369320	369342	369364	369386	369409	369431	369453	17	3 =	
43	10.369476	369498	369520	369542	369565	369587	369609	369632	369654	369676	369699	369721	16	4 =	
44	10.369743	369765	369788	369810	369832	369855	369877	369899	369922	369944	369966	369989	15	1 =	
45	10.370011	370033	370056	370078	370100	370123	370145	370167	370190	370212	370234	370257	14	2 =	
46	10.370279	370301	370324	370346	370368	370391	370413	370435	370458	370480	370502	370525	13	3 =	
47	10.370547	370569	370592	370614	370636	370659	370681	370704	370726	370748	370771	370793	12	4 =	
48	10.370815	370838	370860	370883	370905	370927	370950	370972	370994	371017	371039	371062	11	1 =	
49	10.371084	371106	371129	371151	371174	371196	371218	371241	371263	371286	371308	371330	10	2 =	
50	10.371353	371375	371398	371420	371442	371465	371487	371510	371532	371554	371577	371599	9	3 =	
51	10.371622	371644	371667	371689	371711	371734	371756	371779	371801	371824	371846	371868	8	4 =	
52	10.371891	371913	371936	371958	371981	372003	372026	372048	372070	372093	372115	372138	7	1 =	
53	10.372160	372183	372205	372228	372250	372273	372295	372318	372340	372362	372385	372407	6	2 =	
54	10.372430	372452	372475	372497	372520	372542	372565	372587	372610	372632	372655	372678	5	3 =	
55	10.372700	372722	372745	372767	372790	372812	372835	372857	372880	372902	372925	372947	4	4 =	
56	10.372970	372992	373015	373037	373060	373082	373105	373127	373150	373172	373195	373217	3	1 =	
57	10.373240	373262	373285	373307	373330	373353	373375	373398	373420	373443	373465	373488	2	2 =	
58	10.373510	373533	373555	373578	373600	373623	373646	373668	373691	373713	373736	373758	1	3 =	
59	10.373781	373803	373826	373849	373871	373894	373916	373939	373961	373984	374007	374029	0	4 =	
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'			
Co-secant of 25 degrees, or Secant of 115 degrees.														Minutes	Proportional parts.

LOGARITHMIC SECANTS.

Secant of 65 degrees, or Co-secant of 155 degrees.												Minutes	Proport. parts.	
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"				
052	374074	374097	374119	374142	374165	374187	374210	374232	374255	374278	374300	59	1" = 5	
323	374345	374368	374390	374413	374436	374458	374481	374504	374526	374549	374571	58	2. 9	
594	374617	374639	374662	374684	374707	374730	374752	374775	374797	374820	374843	57	3. 14	
865	374888	374911	374933	374956	374979	375001	375024	375046	375069	375092	375114	56	4. 18	
137	375160	375182	375205	375228	375250	375273	375296	375318	375341	375364	375386	55	1 = 5	
409	375434	375456	375479	375500	375522	375545	375568	375590	375613	375636	375658	54	2. 9	
681	375704	375726	375749	375772	375794	375817	375840	375862	375885	375908	375930	53	3. 14	
953	375976	375999	376021	376044	376067	376089	376112	376135	376158	376180	376203	52	4. 15	
226	376248	376271	376294	376317	376339	376362	376385	376407	376430	376453	376476	51	1 = 5	
498	376521	376544	376567	376589	376612	376635	376658	376680	376703	376726	376748	50	2. 9	
771	376794	376817	376839	376862	376885	376908	376930	376953	376976	376999	377022	49	3. 14	
1044	377067	377090	377113	377135	377158	377181	377204	377226	377249	377272	377295	48	4. 18	
318	377340	377363	377386	377409	377432	377455	377477	377500	377523	377546	377568	47	1 = 5	
591	377614	377637	377660	377682	377705	377728	377751	377774	377797	377819	377842	46	2. 9	
865	377888	377910	377933	377956	377979	378002	378025	378047	378070	378093	378116	45	3. 14	
1139	378162	378184	378207	378230	378253	378276	378299	378321	378344	378367	378390	44	4. 18	
143	378436	378459	378481	378504	378527	378550	378573	378596	378619	378642	378664	43	1 = 5	
687	378710	378733	378756	378779	378802	378824	378847	378870	378893	378916	378939	42	2. 9	
962	378958	379008	379030	379053	379076	379099	379122	379145	379168	379191	379214	41	3. 14	
327	379259	379282	379305	379328	379351	379374	379397	379420	379443	379466	379489	40	4. 18	
512	379534	379557	379580	379603	379626	379649	379672	379695	379718	379741	379764	39	1 = 5	
787	379780	379833	379856	379879	379901	379924	379947	379970	379993	380016	380039	38	2. 9	
262	380085	380108	380131	380154	380177	380200	380223	380246	380269	380292	380315	37	3. 14	
138	380361	380384	380407	380430	380453	380476	380499	380522	380545	380568	380591	36	4. 18	
114	380637	380660	380683	380706	380729	380752	380775	380798	380821	380844	380867	35	1 = 5	
390	380913	380936	380959	380982	381005	381028	381051	381074	381097	381120	381143	34	2. 9	
666	381189	381212	381235	381258	381281	381304	381327	381350	381373	381396	381419	33	3. 14	
42	381465	381488	381511	381535	381558	381581	381604	381627	381650	381673	381696	32	4. 18	
119	381742	381765	381788	381811	381834	381857	381880	381904	381927	381950	381973	31	1 = 5	
996	382019	382042	382065	382088	382111	382134	382157	382181	382204	382227	382250	30	2. 9	
753	382296	382319	382342	382365	382389	382412	382435	382458	382481	382504	382527	29	3. 14	
50	382573	382597	382620	382643	382666	382689	382712	382735	382758	382782	382805	28	4. 19	
28	382851	382874	382897	382920	382944	382967	382990	383013	383036	383059	383082	27	1 = 5	
6	383129	383152	383175	383198	383221	383245	383268	383291	383314	383337	383360	26	2. 9	
84	383407	383430	383453	383476	383499	383523	383546	383569	383592	383615	383639	25	3. 14	
62	383685	383708	383731	383754	383778	383801	383824	383847	383870	383894	383917	24	4. 19	
40	383963	383986	384010	384033	384056	384079	384103	384126	384149	384172	384195	23	1 = 5	
19	384242	384265	384288	384312	384335	384358	384381	384405	384428	384451	384474	22	2. 9	
78	384521	384544	384567	384591	384614	384637	384660	384684	384707	384730	384753	21	3. 14	
97	384800	384823	384846	384870	384893	384916	384939	384963	384986	385009	385033	20	4. 19	
56	385079	385102	385126	385149	385172	385196	385219	385242	385265	385289	385312	19	1 = 5	
35	385359	385382	385405	385428	385451	385475	385498	385522	385545	385568	385592	18	2. 9	
15	385638	385662	385685	385708	385732	385755	385778	385802	385825	385848	385872	17	3. 14	
95	385918	385942	385965	385988	386012	386035	386058	386082	386105	386128	386152	16	4. 19	
75	386198	386222	386245	386268	386292	386315	386338	386362	386385	386409	386432	15	1 = 5	
55	386479	386502	386525	386549	386572	386596	386619	386642	386666	386689	386712	14	2. 9	
36	386759	386783	386806	386829	386853	386876	386900	386923	386946	386970	386993	13	3. 14	
17	387040	387063	387087	387110	387134	387157	387181	387204	387227	387251	387274	12	4. 19	
98	387321	387344	387368	387391	387415	387438	387462	387485	387509	387532	387555	11	1 = 5	
79	387602	387626	387649	387673	387696	387720	387743	387766	387790	387813	387837	10	2. 9	
60	387884	387907	387931	387954	387978	388001	388025	388048	388071	388095	388118	9	3. 14	
42	388165	388189	388212	388236	388259	388283	388306	388330	388353	388377	388400	8	4. 19	
24	388447	388471	388494	388518	388541	388565	388588	388612	388635	388659	388682	7	1 = 5	
06	388729	388753	388776	388800	388823	388847	388871	388894	388918	388941	388965	6	2. 9	
88	389012	389035	389059	389082	389106	389129	389153	389176	389200	389224	389247	5	3. 14	
71	389294	389318	389341	389365	389388	389412	389436	389459	389483	389506	389530	4	4. 19	
53	389577	389601	389624	389648	389671	389695	389718	389742	389766	389789	389813	3	1 = 5	
36	389860	389884	389907	389931	389954	389978	390002	390025	390049	390072	390096	2	2. 9	
20	390143	390167	390190	390214	390238	390261	390285	390309	390332	390356	390379	1	3. 14	
03	390427	390450	390474	390498	390521	390545	390568	390592	390616	390639	390663	0	4. 19	
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"		Minutes	Proport. parts.	
Co-secant of 24 degrees, or Secant of 114 degrees.												Minutes	Proport. parts.	

LOGARITHMIC SECANTS.

Minutes		Secant of 66 degrees, or Co-secant of 156 degrees.												Minutes	Proportional Parts
		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10.	390687	390710	390734	390758	390781	390805	390829	390852	390876	390900	390923	390947	59	1 = 1
1	10.	390971	390994	391018	391042	391065	391089	391113	391136	391160	391184	391207	391231	58	2. 1
2	10.	391255	391278	391302	391326	391349	391373	391397	391420	391444	391468	391491	391515	57	3. 1
3	10.	391539	391563	391586	391610	391634	391657	391681	391705	391729	391752	391776	391800	56	4. 1
4	10.	391823	391847	391871	391895	391918	391942	391966	391989	392013	392037	392061	392084	55	1 = 1
5	10.	392108	392132	392156	392179	392203	392227	392251	392274	392298	392322	392346	392369	54	2. 1
6	10.	392393	392417	392441	392464	392488	392512	392536	392559	392583	392607	392631	392655	53	3. 1
7	10.	392678	392702	392726	392750	392773	392797	392821	392845	392869	392892	392916	392940	52	4. 1
8	10.	392964	392988	393011	393035	393059	393083	393107	393130	393154	393178	393202	393226	51	1 = 1
9	10.	393249	393273	393297	393321	393345	393368	393392	393416	393440	393464	393488	393511	50	2. 1
10	10.	393535	393559	393583	393607	393631	393654	393678	393702	393726	393750	393774	393797	49	3. 1
11	10.	393821	393845	393869	393893	393917	393941	393964	393988	394012	394036	394060	394084	48	4. 1
12	10.	394108	394132	394155	394179	394203	394227	394251	394275	394299	394323	394346	394370	47	1 = 1
13	10.	394394	394418	394442	394466	394490	394514	394538	394561	394585	394609	394633	394657	46	2. 1
14	10.	394681	394705	394729	394753	394777	394801	394824	394848	394872	394896	394920	394944	45	3. 1
15	10.	394968	394992	395016	395040	395064	395088	395112	395135	395159	395183	395207	395231	44	4. 1
16	10.	395255	395279	395303	395327	395351	395375	395399	395423	395447	395471	395495	395519	43	1 = 1
17	10.	395543	395567	395591	395615	395639	395662	395686	395710	395734	395758	395782	395806	42	2. 1
18	10.	395830	395854	395878	395902	395926	395950	395974	395998	396022	396046	396070	396094	41	3. 1
19	10.	396118	396142	396166	396190	396214	396238	396262	396286	396310	396334	396358	396382	40	4. 1
20	10.	396406	396430	396454	396478	396502	396526	396551	396575	396599	396623	396647	396671	39	1 = 1
21	10.	396695	396719	396743	396767	396791	396815	396839	396863	396887	396911	396935	396959	38	2. 1
22	10.	396983	397007	397031	397055	397079	397103	397127	397151	397175	397199	397223	397247	37	3. 1
23	10.	397272	397296	397320	397344	397368	397393	397417	397441	397465	397489	397513	397537	26	4. 1
24	10.	397561	397585	397609	397633	397657	397682	397706	397730	397754	397778	397802	397826	35	1 = 1
25	10.	397850	397875	397899	397923	397947	397971	397995	398019	398043	398067	398091	398115	34	2. 1
26	10.	398140	398164	398188	398212	398236	398260	398284	398308	398332	398356	398380	398404	33	3. 1
27	10.	398430	398454	398478	398502	398526	398550	398574	398598	398622	398646	398670	398694	32	4. 1
28	10.	398720	398744	398768	398792	398816	398840	398864	398888	398912	398936	398960	398984	31	1 = 1
29	10.	399010	399034	399058	399082	399106	399130	399154	399178	399202	399226	399250	399274	30	2. 1
30	10.	399300	399324	399348	399372	399396	399420	399444	399468	399492	399516	399540	399564	29	3. 1
31	10.	399591	399615	399639	399663	399687	399711	399735	399759	399783	399807	399831	399855	28	4. 1
32	10.	399882	399906	399930	399954	399978	400002	400026	400050	400074	400098	400122	400146	27	1 = 1
33	10.	400173	400197	400221	400245	400269	400293	400317	400341	400365	400389	400413	400437	26	2. 1
34	10.	400464	400488	400512	400536	400560	400584	400608	400632	400656	400680	400704	400728	25	3. 1
35	10.	400759	400783	400807	400831	400855	400879	400903	400927	400951	400975	400999	401023	24	4. 1
36	10.	401048	401072	401096	401120	401144	401168	401192	401216	401240	401264	401288	401312	23	1 = 1
37	10.	401340	401364	401388	401412	401436	401460	401484	401508	401532	401556	401580	401604	22	2. 1
38	10.	401632	401656	401680	401704	401728	401752	401776	401800	401824	401848	401872	401896	21	3. 1
39	10.	401925	401949	401973	401997	402021	402045	402069	402093	402117	402141	402165	402189	20	4. 1
40	10.	402217	402241	402265	402289	402313	402337	402361	402385	402409	402433	402457	402481	19	1 = 1
41	10.	402510	402534	402558	402582	402606	402630	402654	402678	402702	402726	402750	402774	18	2. 1
42	10.	402803	402827	402851	402875	402899	402923	402947	402971	402995	403019	403043	403067	17	3. 1
43	10.	403097	403121	403145	403169	403193	403217	403241	403265	403289	403313	403337	403361	16	4. 1
44	10.	403391	403415	403439	403463	403487	403511	403535	403559	403583	403607	403631	403655	15	1 = 1
45	10.	403685	403709	403733	403757	403781	403805	403829	403853	403877	403901	403925	403949	14	2. 1
46	10.	403979	404003	404027	404051	404075	404100	404124	404148	404172	404196	404220	404244	13	3. 1
47	10.	404273	404297	404321	404345	404369	404393	404417	404441	404465	404489	404513	404537	12	4. 1
48	10.	404568	404592	404616	404640	404664	404688	404712	404736	404760	404784	404808	404832	11	1 = 1
49	10.	404863	404887	404911	404935	404959	404983	405007	405031	405055	405079	405103	405127	10	2. 1
50	10.	405158	405182	405206	405230	405254	405278	405302	405326	405350	405374	405398	405422	9	3. 1
51	10.	405453	405477	405501	405525	405549	405573	405597	405621	405645	405669	405693	405717	8	4. 1
52	10.	405749	405773	405797	405821	405845	405869	405893	405917	405941	405965	405989	406013	7	1 = 1
53	10.	406044	406068	406092	406116	406140	406164	406188	406212	406236	406260	406284	406308	6	2. 1
54	10.	406341	406365	406389	406413	406437	406461	406485	406509	406533	406557	406581	406605	5	3. 1
55	10.	406637	406661	406685	406709	406733	406757	406781	406805	406829	406853	406877	406901	4	4. 1
56	10.	406933	406957	406981	407005	407029	407053	407077	407101	407125	407149	407173	407197	3	1 = 1
57	10.	407230	407254	407278	407302	407326	407350	407374	407398	407422	407446	407470	407494	2	2. 1
58	10.	407527	407551	407575	407599	407623	407647	407671	407695	407719	407743	407767	407791	1	3. 1
59	10.	407824	407848	407872	407896	407920	407944	407968	407992	408016	408040	408064	408088	0	4. 1
		60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proportional Parts
		Co-secant of 23 degrees, or Secant of 113 degrees.													

LOGARITHMIC SECANTS.

Secant of 67 degrees, or Co-secant of 157 degrees.												Minute	Proport. parts.		
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°				
10. 408122	408147	408172	408196	408221	408246	408271	408296	408320	408345	408370	408395	59	1" = 5		
10. 408420	408444	408469	408494	408519	408544	408569	408593	408618	408643	408668	408693	58	2. 10		
10. 408718	408742	408767	408792	408817	408842	408867	408892	408916	408941	408966	408991	57	3. 15		
10. 409016	409041	409066	409090	409115	409140	409165	409190	409215	409240	409265	409289	56	4. 20		
10. 409314	409339	409364	409389	409414	409439	409464	409489	409513	409538	409563	409588	55	1" = 5		
10. 409613	409638	409663	409688	409713	409738	409762	409787	409812	409837	409862	409887	54	2. 10		
10. 409912	409937	409962	409987	410012	410037	410062	410086	410111	410136	410161	410186	53	3. 15		
10. 410211	410236	410261	410286	410311	410336	410361	410386	410411	410436	410461	410486	52	4. 20		
10. 410511	410536	410561	410586	410610	410635	410660	410685	410710	410735	410760	410785	51	1" = 5		
10. 410810	410835	410860	410885	410910	410935	410960	410985	411010	411035	411060	411085	50	2. 10		
10. 411110	411135	411160	411185	411210	411235	411260	411285	411310	411335	411360	411385	49	3. 15		
10. 411410	411435	411460	411485	411510	411536	411561	411586	411611	411636	411661	411686	48	4. 20		
10. 411711	411736	411761	411786	411811	411836	411861	411886	411911	411936	411961	411986	47	1" = 5		
10. 412011	412036	412062	412087	412112	412137	412162	412187	412212	412237	412262	412287	46	2. 10		
10. 412312	412337	412362	412388	412413	412438	412463	412488	412513	412538	412563	412588	45	3. 15		
10. 412613	412639	412664	412689	412714	412739	412764	412789	412814	412839	412865	412890	44	4. 20		
10. 412915	412940	412965	412990	413015	413041	413066	413091	413116	413141	413166	413191	43	1" = 5		
10. 413216	413242	413267	413292	413317	413342	413367	413393	413418	413443	413468	413493	42	2. 10		
10. 413518	413544	413569	413594	413619	413644	413669	413695	413720	413745	413770	413795	41	3. 15		
10. 413820	413846	413871	413896	413921	413946	413972	413997	414022	414047	414072	414098	40	4. 20		
10. 414123	414148	414173	414199	414224	414249	414274	414299	414325	414350	414375	414400	39	1" = 5		
10. 414425	414451	414477	414501	414526	414552	414577	414602	414627	414653	414678	414703	38	2. 10		
10. 414728	414754	414779	414804	414829	414855	414880	414905	414930	414956	414981	415006	37	3. 15		
10. 415031	415057	415082	415107	415133	415158	415183	415208	415234	415259	415284	415310	36	4. 20		
10. 415335	415360	415385	415411	415436	415461	415487	415512	415537	415563	415588	415613	35	1" = 5		
10. 415638	415664	415689	415714	415740	415765	415790	415816	415841	415866	415892	415917	34	2. 10		
10. 415942	415968	415993	416018	416044	416069	416094	416120	416145	416170	416196	416221	33	3. 15		
10. 416246	416272	416297	416323	416348	416373	416399	416424	416449	416475	416500	416525	32	4. 20		
10. 416551	416576	416602	416627	416652	416678	416703	416728	416754	416779	416805	416830	31	1" = 5		
10. 416855	416881	416906	416932	416957	416982	417008	417033	417059	417084	417109	417135	30	2. 10		
10. 417160	417186	417211	417237	417262	417287	417313	417338	417364	417389	417415	417440	29	3. 15		
10. 417465	417491	417516	417542	417567	417593	417618	417644	417669	417694	417720	417745	28	4. 20		
10. 417771	417797	417822	417847	417873	417898	417924	417949	417974	418000	418025	418051	27	1" = 5		
10. 418076	418102	418127	418153	418178	418204	418229	418255	418280	418306	418331	418357	26	2. 10		
10. 418382	418408	418433	418459	418484	418510	418535	418561	418586	418612	418637	418663	25	3. 15		
10. 418688	418714	418739	418765	418790	418816	418842	418867	418893	418918	418944	418969	24	4. 20		
10. 418995	419020	419046	419071	419097	419122	419148	419174	419199	419225	419250	419276	23	1" = 5		
10. 419301	419327	419353	419378	419404	419429	419455	419480	419506	419532	419557	419583	22	2. 10		
10. 419608	419634	419659	419685	419711	419736	419762	419787	419813	419839	419864	419890	21	3. 15		
10. 419915	419941	419967	419992	420018	420043	420069	420095	420120	420146	420172	420197	20	4. 20		
10. 420223	420248	420274	420300	420325	420351	420377	420402	420428	420454	420479	420505	19	1" = 5		
10. 420530	420556	420582	420607	420633	420659	420684	420710	420736	420761	420787	420813	18	2. 10		
10. 420838	420864	420890	420915	420941	420967	420992	421018	421044	421069	421095	421121	17	3. 15		
10. 421146	421172	421198	421224	421249	421275	421301	421326	421352	421378	421403	421429	16	4. 20		
10. 421455	421481	421506	421532	421558	421583	421609	421635	421661	421686	421712	421738	15	1" = 5		
10. 421764	421789	421815	421841	421867	421892	421918	421944	421969	421995	422021	422047	14	2. 10		
10. 422072	422098	422124	422150	422176	422201	422227	422253	422279	422304	422330	422356	13	3. 15		
10. 422382	422407	422433	422459	422485	422511	422536	422562	422588	422614	422640	422665	12	4. 20		
10. 422691	422717	422743	422769	422794	422820	422846	422872	422898	422923	422949	422975	11	1" = 5		
10. 423001	423027	423052	423078	423104	423130	423156	423182	423207	423233	423259	423285	10	2. 10		
10. 423311	423337	423362	423388	423414	423440	423466	423492	423518	423543	423569	423595	9	3. 15		
10. 423621	423647	423673	423699	423724	423750	423776	423802	423828	423854	423880	423906	8	4. 20		
10. 423931	423957	423983	424009	424035	424061	424087	424113	424139	424164	424190	424216	7	1" = 5		
10. 424242	424268	424294	424320	424346	424372	424398	424424	424449	424475	424501	424527	6	2. 10		
10. 424553	424579	424605	424631	424657	424683	424709	424735	424761	424787	424813	424838	5	3. 15		
10. 424864	424890	424916	424942	424968	424994	425020	425046	425072	425098	425124	425150	4	4. 20		
10. 425176	425202	425228	425254	425280	425306	425332	425358	425384	425410	425436	425462	3	1" = 5		
10. 425488	425514	425540	425566	425592	425618	425644	425670	425696	425722	425748	425774	2	2. 10		
10. 425800	425826	425852	425878	425904	425930	425956	425982	426008	426034	426060	426086	1	3. 15		
10. 426112	426138	426164	426190	426216	426242	426268	426294	426320	426346	426372	426398	0	4. 20		
60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°		Minute	Proport. parts.	
Co-secant of 22 degrees, or Secant of 112 degrees.															

LOGARITHMIC SECANTS.

Secant of 68 degrees, or Co-secant of 158 degrees.														
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes	Proport.
0	10.426425	426451	426477	426503	426529	426555	426581	426607	426633	426659	426685	426711	59	1"
1	10.426737	426763	426790	426816	426842	426868	426894	426920	426946	426972	426998	427024	58	2.
2	10.427050	427077	427103	427129	427155	427181	427207	427233	427259	427285	427311	427338	57	3.
3	10.427364	427390	427416	427442	427468	427494	427521	427547	427573	427599	427625	427651	56	4.
4	10.427677	427703	427730	427756	427782	427808	427834	427860	427887	427913	427939	427965	55	1 =
5	10.427991	428017	428044	428070	428096	428122	428148	428174	428201	428227	428253	428279	54	2.
6	10.428305	428332	428358	428384	428410	428436	428463	428489	428515	428541	428567	428594	53	3.
7	10.428620	428646	428672	428698	428725	428751	428777	428803	428829	428856	428882	428908	52	4.
8	10.428934	428961	428987	429013	429039	429066	429092	429118	429144	429171	429197	429223	51	1 =
9	10.429249	429276	429302	429328	429354	429381	429407	429433	429459	429486	429512	429538	50	2.
10	10.429564	429591	429617	429643	429670	429696	429722	429748	429775	429801	429827	429854	49	3.
11	10.429880	429906	429933	429959	429985	430011	430038	430064	430090	430117	430143	430169	48	4.
12	10.430196	430222	430248	430275	430301	430327	430354	430380	430406	430433	430459	430485	47	1 =
13	10.430512	430538	430564	430591	430617	430643	430670	430696	430722	430749	430775	430802	46	2.
14	10.430828	430854	430881	430907	430933	430960	430986	431013	431039	431065	431092	431118	45	3.
15	10.431144	431171	431197	431224	431250	431276	431303	431329	431356	431382	431408	431435	44	4.
16	10.431461	431488	431514	431540	431567	431593	431620	431646	431673	431699	431725	431752	43	1 =
17	10.431778	431805	431831	431858	431884	431910	431937	431963	431990	432016	432043	432069	42	2.
18	10.432096	432122	432148	432175	432201	432228	432254	432281	432307	432334	432360	432387	41	3.
19	10.432413	432440	432466	432493	432519	432546	432572	432599	432625	432652	432678	432705	40	4.
20	10.432731	432758	432784	432811	432837	432864	432890	432917	432943	432970	432996	433023	39	1 =
21	10.433049	433076	433102	433129	433155	433182	433208	433235	433261	433288	433314	433341	38	2.
22	10.433368	433394	433421	433447	433474	433500	433527	433553	433580	433607	433633	433660	37	3.
23	10.433686	433713	433739	433766	433793	433819	433846	433872	433899	433925	433952	433979	36	4.
24	10.434005	434032	434058	434085	434112	434138	434165	434191	434218	434245	434271	434298	35	1 =
25	10.434324	434351	434378	434404	434431	434457	434484	434511	434537	434564	434591	434617	34	2.
26	10.434644	434670	434697	434724	434750	434777	434804	434830	434857	434884	434910	434937	33	3.
27	10.434964	434990	435017	435044	435070	435097	435124	435150	435177	435204	435230	435257	32	4.
28	10.435284	435310	435337	435364	435390	435417	435444	435470	435497	435524	435551	435577	31	1 =
29	10.435604	435631	435657	435684	435711	435737	435764	435791	435818	435844	435871	435898	30	2.
30	10.435925	435951	435978	436005	436031	436058	436085	436112	436138	436165	436192	436219	29	3.
31	10.436245	436272	436299	436326	436352	436379	436406	436433	436459	436486	436513	436540	28	4.
32	10.436566	436593	436620	436647	436674	436700	436727	436754	436781	436808	436834	436861	27	1 =
33	10.436888	436915	436941	436968	436995	437022	437049	437075	437102	437129	437156	437183	26	2.
34	10.437210	437236	437263	437290	437317	437344	437370	437397	437424	437451	437478	437505	25	3.
35	10.437531	437558	437585	437612	437639	437666	437693	437719	437746	437773	437800	437827	24	4.
36	10.437854	437881	437907	437934	437961	437988	438015	438042	438069	438096	438122	438149	23	1 =
37	10.438176	438203	438230	438257	438284	438311	438338	438364	438391	438418	438445	438472	22	2.
38	10.438499	438526	438553	438580	438607	438634	438660	438687	438714	438741	438768	438795	21	3.
39	10.438822	438849	438876	438903	438930	438957	438984	439011	439038	439065	439091	439118	20	4.
40	10.439145	439172	439199	439226	439253	439280	439307	439334	439361	439388	439415	439442	19	1 =
41	10.439469	439496	439523	439550	439577	439604	439631	439658	439685	439712	439739	439766	18	2.
42	10.439793	439820	439847	439874	439901	439928	439955	439982	440009	440036	440063	440090	17	3.
43	10.440117	440144	440171	440198	440225	440252	440279	440306	440333	440360	440387	440414	16	4.
44	10.440441	440469	440496	440523	440550	440577	440604	440631	440658	440685	440712	440739	15	1 =
45	10.440766	440793	440820	440847	440874	440902	440929	440956	440983	441010	441037	441064	14	2.
46	10.441091	441118	441145	441172	441200	441227	441254	441281	441308	441335	441362	441389	13	3.
47	10.441416	441444	441471	441498	441525	441552	441579	441606	441633	441660	441688	441715	12	4.
48	10.441742	441769	441796	441823	441851	441878	441905	441932	441959	441986	442014	442041	11	1 =
49	10.442068	442095	442122	442149	442177	442204	442231	442258	442285	442312	442340	442367	10	2.
50	10.442394	442421	442448	442476	442503	442530	442557	442584	442612	442639	442666	442693	9	3.
51	10.442720	442748	442775	442802	442829	442856	442884	442911	442938	442965	442993	443020	8	4.
52	10.443047	443074	443102	443129	443156	443183	443211	443238	443265	443292	443320	443347	7	1 =
53	10.443374	443401	443429	443456	443483	443510	443538	443565	443592	443619	443647	443674	6	2.
54	10.443701	443729	443756	443783	443810	443838	443865	443892	443920	443947	443974	444002	5	3.
55	10.444029	444056	444083	444111	444138	444165	444193	444220	444247	444275	444302	444329	4	4.
56	10.444357	444386	444411	444439	444466	444493	444521	444548	444575	444603	444630	444657	3	1 =
57	10.444685	444712	444739	444767	444794	444822	444849	444876	444904	444931	444958	444986	2	2.
58	10.445013	445041	445068	445095	445123	445150	445177	445205	445232	445260	445287	445314	1	3.
59	10.445342	445369	445397	445424	445451	445479	445506	445534	445561	445589	445616	445643	0	4.
	60'	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport.
Co-secant of 21 degrees, or Secant of 111 degrees.														

LOGARITHMIC SECANTS.

Secant of 69 degrees, or Co-secant of 159 degrees.													Minutes	Proport. parts.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10.445671	445698	445726	445753	445781	445808	445835	445863	445890	445918	445945	445973	59	1" = 6
1	10.446000	446027	446055	446082	446110	446137	446165	446192	446220	446247	446275	446303	58	2. 11
2	10.446330	446357	446385	446413	446439	446467	446494	446522	446549	446577	446604	446632	57	3. 17
3	10.446659	446687	446714	446742	446769	446797	446824	446852	446879	446907	446934	446962	56	4. 22
4	10.446989	447017	447045	447072	447100	447127	447155	447182	447210	447237	447265	447293	55	1 = 6
5	10.447320	447347	447375	447403	447430	447458	447485	447513	447540	447568	447595	447623	54	2. 11
6	10.447651	447678	447706	447733	447761	447788	447816	447844	447871	447899	447926	447954	53	3. 17
7	10.447982	448009	448037	448064	448092	448120	448147	448175	448202	448230	448258	448285	52	4. 22
8	10.448313	448340	448368	448396	448423	448451	448479	448506	448534	448561	448589	448617	51	1 = 6
9	10.448644	448672	448700	448727	448755	448783	448810	448838	448866	448893	448921	448949	50	2. 11
10	10.448976	449004	449032	449059	449087	449115	449142	449170	449198	449225	449253	449281	49	3. 17
11	10.449308	449336	449364	449391	449419	449447	449475	449502	449530	449558	449585	449613	48	4. 22
12	10.449641	449668	449696	449724	449752	449779	449807	449835	449863	449890	449918	449946	47	1 = 6
13	10.449973	450001	450029	450057	450084	450112	450140	450168	450195	450223	450251	450279	46	2. 11
14	10.450306	450334	450362	450390	450418	450445	450473	450501	450529	450556	450584	450612	45	3. 17
15	10.450640	450668	450696	450723	450751	450779	450807	450834	450862	450890	450918	450946	44	4. 22
16	10.450973	451001	451029	451057	451085	451112	451140	451168	451196	451224	451252	451279	43	1 = 6
17	10.451307	451335	451363	451391	451419	451446	451474	451502	451530	451558	451586	451614	42	2. 11
18	10.451641	451669	451697	451725	451753	451781	451809	451837	451864	451892	451920	451948	41	3. 17
19	10.451976	452004	452032	452060	452087	452115	452143	452171	452199	452227	452255	452283	40	4. 22
20	10.452311	452339	452367	452394	452422	452450	452478	452506	452534	452562	452590	452618	39	1 = 6
21	10.452646	452674	452702	452730	452757	452785	452813	452841	452869	452897	452925	452953	38	2. 11
22	10.452981	453009	453037	453065	453093	453121	453149	453177	453205	453233	453261	453289	37	3. 17
23	10.453317	453345	453373	453401	453429	453457	453485	453513	453541	453569	453597	453625	36	4. 22
24	10.453653	453681	453709	453737	453765	453793	453821	453849	453877	453905	453933	453961	35	1 = 6
25	10.453989	454017	454045	454073	454101	454129	454157	454185	454213	454241	454269	454297	34	2. 11
26	10.454325	454353	454382	454410	454438	454466	454494	454522	454550	454578	454606	454634	33	3. 17
27	10.454662	454690	454719	454747	454775	454803	454831	454859	454887	454915	454943	454971	32	4. 22
28	10.454999	455028	455056	455084	455112	455140	455168	455196	455224	455252	455280	455308	31	1 = 6
29	10.455337	455365	455393	455421	455449	455478	455506	455534	455562	455590	455618	455646	30	2. 11
30	10.455675	455703	455731	455759	455787	455815	455844	455872	455900	455928	455956	455985	29	3. 17
31	10.456013	456041	456069	456097	456125	456154	456182	456210	456238	456266	456295	456323	28	4. 22
32	10.456351	456379	456407	456436	456464	456492	456520	456549	456577	456605	456633	456661	27	1 = 6
33	10.456690	456718	456746	456774	456803	456831	456859	456887	456916	456944	456972	457000	26	2. 11
34	10.457029	457057	457085	457113	457142	457170	457198	457226	457255	457283	457311	457340	25	3. 17
35	10.457368	457396	457424	457453	457481	457509	457538	457566	457594	457622	457651	457679	24	4. 22
36	10.457707	457736	457764	457792	457821	457849	457877	457906	457934	457962	457991	458019	23	1 = 6
37	10.458047	458076	458104	458132	458161	458189	458217	458246	458274	458302	458331	458359	22	2. 11
38	10.458387	458416	458444	458472	458501	458529	458558	458586	458614	458643	458671	458699	21	3. 17
39	10.458728	458756	458785	458813	458841	458870	458898	458927	458955	458983	459012	459040	20	4. 22
40	10.459069	459097	459125	459154	459182	459211	459239	459268	459296	459324	459353	459381	19	1 = 6
41	10.459410	459438	459467	459495	459523	459552	459580	459609	459637	459666	459694	459723	18	2. 11
42	10.459751	459779	459808	459836	459865	459893	459922	459950	459979	460007	460036	460064	17	3. 17
43	10.460093	460121	460150	460178	460207	460235	460264	460292	460321	460349	460378	460406	16	4. 22
44	10.460435	460463	460492	460520	460549	460577	460606	460634	460663	460691	460720	460748	15	1 = 6
45	10.460777	460805	460834	460863	460891	460920	460948	460977	461005	461034	461062	461091	14	2. 11
46	10.461120	461148	461177	461205	461234	461262	461291	461320	461348	461377	461405	461434	13	3. 17
47	10.461462	461491	461520	461548	461577	461605	461634	461663	461691	461720	461748	461777	12	4. 22
48	10.461806	461834	461863	461891	461920	461949	461977	462006	462035	462063	462092	462121	11	1 = 6
49	10.462149	462178	462206	462235	462264	462292	462321	462350	462378	462407	462436	462464	10	2. 11
50	10.462493	462522	462550	462579	462608	462636	462665	462694	462722	462751	462780	462808	9	3. 17
51	10.462837	462866	462894	462923	462952	462981	463009	463038	463067	463095	463124	463153	8	4. 22
52	10.463182	463210	463239	463268	463296	463325	463354	463383	463411	463440	463469	463498	7	1 = 6
53	10.463526	463555	463584	463613	463641	463670	463699	463728	463756	463785	463814	463843	6	2. 11
54	10.463871	463900	463929	463958	463986	464015	464044	464073	464102	464130	464159	464188	5	3. 17
55	10.464217	464246	464274	464303	464332	464361	464390	464418	464447	464476	464505	464534	4	4. 22
56	10.464562	464591	464620	464649	464678	464707	464735	464764	464793	464822	464851	464880	3	1 = 6
57	10.464908	464937	464966	464995	465024	465053	465082	465110	465139	465168	465197	465226	2	2. 11
58	10.465255	465284	465313	465341	465370	465399	465428	465457	465486	465515	465544	465572	1	3. 17
59	10.465601	465630	465659	465688	465717	465746	465775	465804	465833	465862	465890	465919	0	4. 22
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-secant of 20 degrees, or Secant of 110 degrees.														

LOGARITHMIC SECANTS.

Secant of 70 degrees, or Co-secant of 160 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Propor.
0	10.465948	465977	466006	466035	466064	466093	466122	466151	466180	466209	466238	466267	59	1 =
1	10.466296	466325	466354	466382	466411	466440	466469	466498	466527	466556	466585	466614	58	2 =
2	10.466643	466672	466701	466730	466759	466788	466817	466846	466875	466904	466933	466962	57	3 =
3	10.466991	467020	467049	467078	467107	467136	467165	467194	467223	467252	467281	467310	56	4 =
4	10.467339	467368	467397	467426	467455	467484	467513	467542	467571	467600	467630	467659	55	1 =
5	10.467688	467717	467746	467775	467804	467833	467862	467891	467920	467949	467978	468007	54	2 =
6	10.468036	468066	468095	468124	468153	468182	468211	468240	468269	468298	468327	468357	53	3 =
7	10.468386	468415	468444	468473	468502	468531	468560	468589	468619	468648	468677	468706	52	4 =
8	10.468735	468764	468793	468823	468852	468881	468910	468939	468968	468997	469027	469056	51	1 =
9	10.469085	469114	469143	469172	469202	469231	469260	469289	469318	469347	469377	469406	50	2 =
10	10.469435	469464	469493	469523	469552	469581	469610	469639	469669	469698	469727	469756	49	3 =
11	10.469785	469815	469844	469873	469902	469931	469961	469990	470019	470048	470078	470107	48	4 =
12	10.470136	470165	470195	470224	470253	470282	470312	470341	470370	470399	470429	470458	47	1 =
13	10.470487	470516	470546	470575	470604	470634	470663	470692	470721	470751	470780	470809	46	2 =
14	10.470837	470867	470897	470926	470956	470985	471014	471044	471073	471102	471132	471161	45	3 =
15	10.471190	471220	471249	471278	471308	471337	471366	471396	471425	471454	471484	471513	44	4 =
16	10.471542	471572	471601	471630	471660	471689	471718	471748	471777	471807	471836	471865	43	1 =
17	10.471895	471924	471953	471983	472012	472042	472071	472100	472130	472159	472189	472218	42	2 =
18	10.472247	472277	472306	472336	472365	472394	472424	472453	472483	472512	472541	472571	41	3 =
19	10.472600	472630	472659	472689	472718	472747	472777	472806	472836	472865	472895	472924	40	4 =
20	10.472954	472983	473013	473042	473071	473101	473130	473160	473189	473219	473248	473278	39	1 =
21	10.473307	473337	473366	473396	473425	473455	473484	473514	473543	473573	473602	473632	38	2 =
22	10.473661	473691	473720	473750	473779	473809	473838	473868	473897	473927	473956	473986	37	3 =
23	10.474016	474045	474075	474104	474134	474163	474193	474222	474252	474281	474311	474341	36	4 =
24	10.474370	474400	474429	474459	474488	474518	474548	474577	474607	474636	474666	474695	35	1 =
25	10.474725	474755	474784	474814	474843	474873	474903	474932	474962	474991	475021	475051	34	2 =
26	10.475080	475110	475140	475169	475199	475228	475258	475288	475317	475347	475377	475406	33	3 =
27	10.475436	475466	475495	475525	475555	475584	475614	475644	475673	475703	475733	475762	32	4 =
28	10.475792	475822	475851	475881	475911	475940	475970	476000	476029	476059	476089	476118	31	1 =
29	10.476148	476178	476208	476237	476267	476297	476326	476356	476386	476416	476445	476475	30	2 =
30	10.476505	476534	476564	476594	476624	476653	476683	476713	476743	476772	476802	476832	29	3 =
31	10.476862	476891	476921	476951	476981	477010	477040	477070	477100	477130	477159	477189	28	4 =
32	10.477219	477249	477278	477308	477338	477368	477398	477427	477457	477487	477517	477547	27	1 =
33	10.477576	477606	477636	477666	477696	477726	477755	477785	477815	477845	477875	477905	26	2 =
34	10.477934	477964	477994	478024	478054	478084	478113	478143	478173	478203	478233	478263	25	3 =
35	10.478293	478322	478352	478382	478412	478442	478472	478502	478532	478562	478592	478622	24	4 =
36	10.478651	478681	478711	478741	478771	478801	478831	478860	478890	478920	478950	478980	23	1 =
37	10.479010	479040	479070	479100	479130	479160	479190	479220	479249	479279	479309	479339	22	2 =
38	10.479369	479399	479429	479459	479489	479519	479549	479579	479609	479639	479669	479699	21	3 =
39	10.479729	479759	479789	479819	479849	479879	479909	479939	479969	479999	480029	480059	20	4 =
40	10.480089	480119	480149	480179	480209	480239	480269	480299	480329	480359	480389	480419	19	1 =
41	10.480449	480479	480509	480539	480569	480599	480629	480659	480689	480719	480749	480779	18	2 =
42	10.480810	480840	480870	480900	480930	480960	480990	481020	481050	481080	481110	481140	17	3 =
43	10.481170	481201	481231	481261	481291	481321	481351	481381	481411	481441	481472	481502	16	4 =
44	10.481532	481562	481592	481622	481652	481682	481712	481743	481773	481803	481833	481863	15	1 =
45	10.481893	481923	481954	481984	482014	482044	482074	482104	482135	482165	482195	482225	14	2 =
46	10.482255	482285	482316	482346	482376	482406	482436	482467	482497	482527	482557	482587	13	3 =
47	10.482618	482648	482678	482708	482738	482769	482799	482829	482859	482889	482920	482950	12	4 =
48	10.482980	483010	483041	483071	483101	483131	483162	483192	483222	483252	483283	483313	11	1 =
49	10.483343	483373	483404	483434	483464	483494	483525	483555	483585	483615	483646	483676	10	2 =
50	10.483706	483737	483767	483797	483828	483858	483888	483918	483949	483979	484009	484040	9	3 =
51	10.484070	484100	484131	484161	484191	484222	484252	484282	484313	484343	484373	484404	8	4 =
52	10.484434	484464	484495	484525	484555	484586	484616	484646	484677	484707	484738	484768	7	1 =
53	10.484798	484829	484859	484889	484920	484950	484981	485011	485041	485072	485102	485132	6	2 =
54	10.485163	485193	485224	485254	485285	485315	485345	485376	485406	485437	485467	485497	5	3 =
55	10.485528	485558	485589	485619	485650	485680	485711	485741	485771	485802	485832	485863	4	4 =
56	10.485893	485924	485954	485985	486015	486046	486076	486107	486137	486167	486198	486228	3	1 =
57	10.486259	486289	486320	486350	486381	486411	486442	486472	486503	486533	486564	486594	2	2 =
58	10.486625	486655	486686	486717	486747	486778	486808	486839	486869	486900	486930	486961	1	3 =
59	10.486991	487022	487052	487083	487114	487144	487175	487205	487236	487266	487297	487327	0	4 =
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'		
Co-secant of 19 degrees, or Secant of 109 degrees.														

LOGARITHMIC SECANTS.

Secant of 71 degrees, or Co-secant of 161 degrees.													Minutes	Proport. parts.
	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
358	487389	487419	487450	487480	487511	487542	487572	487603	487633	487664	487694	59	1" = 6	
725	487756	487786	487817	487848	487878	487909	487939	487970	488001	488031	488062	58	2. 12	
093	488123	488154	488184	488215	488246	488276	488307	488338	488368	488399	488430	57	3. 18	
460	488491	488522	488552	488583	488614	488644	488675	488706	488736	488767	488798	56	4. 25	
828	488859	488890	488920	488951	488982	489013	489043	489074	489105	489135	489166	55	1 = 6	
197	489228	489258	489289	489320	489350	489381	489412	489443	489473	489504	489535	54	2. 12	
566	489596	489627	489658	489689	489719	489750	489781	489812	489842	489873	489904	53	3. 18	
935	489966	489996	490027	490058	490089	490120	490150	490181	490212	490243	490274	52	4. 25	
304	490335	490366	490397	490428	490458	490489	490520	490551	490582	490613	490643	51	1 = 6	
674	490705	490736	490767	490798	490828	490859	490890	490921	490952	490983	491014	50	2. 12	
044	491075	491106	491137	491168	491199	491230	491261	491291	491322	491353	491384	49	3. 19	
415	491446	491477	491508	491539	491569	491600	491631	491662	491693	491724	491755	48	4. 25	
786	491817	491848	491879	491910	491941	491971	492002	492033	492064	492095	492126	47	1 = 6	
157	492188	492219	492250	492281	492312	492343	492374	492405	492436	492467	492498	46	2. 12	
529	492560	492591	492622	492653	492684	492715	492746	492777	492808	492839	492870	45	3. 19	
901	492932	492963	492994	493025	493056	493087	493118	493149	493180	493211	493242	44	4. 25	
273	493304	493335	493366	493397	493428	493459	493490	493522	493553	493584	493615	43	1 = 6	
646	493677	493708	493739	493770	493801	493832	493863	493894	493926	493957	493988	42	2. 12	
019	494050	494081	494112	494143	494174	494205	494237	494268	494299	494330	494361	41	3. 19	
392	494423	494455	494486	494517	494548	494579	494610	494641	494673	494704	494735	40	4. 25	
766	494797	494828	494860	494891	494922	494953	494984	495015	495047	495078	495109	39	1 = 6	
140	495171	495203	495234	495265	495296	495327	495359	495390	495421	495452	495483	38	2. 13	
515	495546	495577	495608	495640	495671	495702	495733	495764	495796	495827	495858	37	3. 19	
889	495921	495952	495983	496014	496046	496077	496108	496140	496171	496202	496233	36	4. 25	
265	496296	496327	496359	496390	496421	496452	496484	496515	496546	496578	496609	35	1 = 6	
640	496672	496703	496734	496766	496797	496828	496859	496891	496922	496953	496985	34	2. 13	
016	497048	497079	497110	497142	497173	497204	497236	497267	497298	497330	497361	33	3. 19	
392	497424	497455	497487	497518	497549	497581	497612	497644	497675	497706	497738	32	4. 25	
769	497801	497832	497863	497895	497926	497958	497989	498020	498052	498083	498115	31	1 = 6	
146	498178	498209	498240	498272	498303	498335	498366	498398	498429	498461	498492	30	2. 13	
524	498555	498586	498618	498649	498681	498712	498744	498775	498807	498838	498870	29	3. 19	
901	498933	498964	498996	499027	499059	499090	499122	499153	499185	499216	499248	28	4. 25	
279	499311	499342	499374	499405	499437	499469	499500	499532	499563	499595	499626	27	1 = 6	
658	499689	499721	499753	499784	499816	499847	499879	499910	499942	499974	500005	26	2. 13	
037	500068	500100	500131	500163	500195	500226	500258	500289	500321	500353	500384	25	3. 19	
416	500448	500479	500511	500542	500574	500606	500637	500669	500701	500732	500764	24	4. 25	
795	500827	500859	500890	500922	500954	500985	501017	501049	501080	501112	501144	23	1 = 6	
175	501207	501239	501270	501302	501334	501366	501397	501429	501461	501492	501524	22	2. 13	
556	501587	501619	501651	501683	501714	501746	501778	501810	501841	501873	501905	21	3. 19	
936	501968	502000	502032	502063	502095	502127	502159	502190	502222	502254	502286	20	4. 25	
318	502349	502381	502413	502445	502476	502508	502540	502572	502604	502635	502667	19	1 = 6	
699	502731	502763	502794	502826	502858	502890	502922	502953	502985	503017	503049	18	2. 13	
081	503113	503144	503176	503208	503240	503272	503304	503335	503367	503399	503431	17	3. 19	
463	503495	503527	503559	503590	503622	503654	503686	503718	503750	503782	503814	16	4. 25	
845	503977	503999	504031	504063	504095	504127	504159	504191	504223	504255	504287	15	1 = 6	
228	504360	504392	504424	504456	504488	504520	504552	504584	504616	504648	504680	14	2. 13	
612	504644	504676	504708	504740	504772	504803	504835	504867	504899	504931	504963	13	3. 19	
995	505027	505059	505091	505123	505155	505187	505219	505251	505283	505315	505347	12	4. 26	
379	505411	505443	505475	505508	505540	505572	505604	505636	505668	505700	505732	11	1 = 6	
764	505796	505828	505860	505892	505924	505956	505988	506020	506052	506084	506117	10	2. 13	
149	506181	506213	506245	506277	506309	506341	506373	506405	506437	506470	506502	9	3. 19	
534	506566	506598	506630	506662	506694	506727	506759	506791	506823	506855	506887	8	4. 26	
919	506952	506984	507016	507048	507080	507112	507144	507177	507209	507241	507273	7	1 = 6	
305	507338	507370	507402	507434	507466	507498	507531	507563	507595	507627	507659	6	2. 13	
692	507724	507756	507788	507821	507853	507885	507917	507949	507982	508014	508046	5	3. 19	
078	508111	508143	508175	508207	508240	508272	508304	508336	508369	508401	508433	4	4. 26	
465	508498	508530	508562	508595	508627	508659	508691	508724	508756	508788	508821	3	1 = 6	
853	508885	508918	508950	508982	509014	509047	509079	509111	509144	509176	509208	2	2. 13	
241	509273	509305	509338	509370	509402	509435	509467	509500	509532	509564	509597	1	3. 19	
629	509661	509694	509726	509758	509791	509823	509856	509888	509920	509953	509985	0	4. 26	
0"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.	
Co-secant of 18 degrees, or Secant of 108 degrees.														

LOGARITHMIC SECANTS

Minutes	Secant of 72-degrees, or Co-secant of 162 degrees.												Minutes	Proportional Parts
	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
0	10.510018	10.510050	10.510082	10.510115	10.510147	10.510180	10.510212	10.510244	10.510277	10.510309	10.510342	10.510374	59	1"
1	10.510407	10.510439	10.510471	10.510504	10.510536	10.510569	10.510601	10.510634	10.510666	10.510699	10.510731	10.510764	58	2.
2	10.510796	10.510828	10.510861	10.510893	10.510926	10.510958	10.510991	10.511023	10.511056	10.511088	10.511121	10.511153	57	3.
3	10.511186	10.511218	10.511251	10.511283	10.511316	10.511348	10.511381	10.511413	10.511446	10.511478	10.511511	10.511543	56	4.
4	10.511576	10.511608	10.511641	10.511674	10.511706	10.511739	10.511771	10.511804	10.511836	10.511869	10.511901	10.511934	55	1 =
5	10.511966	10.511999	10.512032	10.512064	10.512097	10.512129	10.512162	10.512194	10.512227	10.512260	10.512292	10.512325	54	2.
6	10.512357	10.512390	10.512423	10.512455	10.512488	10.512520	10.512553	10.512586	10.512618	10.512651	10.512683	10.512716	53	3.
7	10.512749	10.512781	10.512814	10.512847	10.512879	10.512912	10.512945	10.512977	10.513010	10.513042	10.513075	10.513108	52	4.
8	10.513140	10.513173	10.513206	10.513238	10.513271	10.513304	10.513336	10.513369	10.513402	10.513434	10.513467	10.513500	51	1 =
9	10.513533	10.513565	10.513598	10.513631	10.513663	10.513696	10.513729	10.513761	10.513794	10.513827	10.513860	10.513892	50	2.
10	10.513925	10.513958	10.513990	10.514023	10.514056	10.514089	10.514121	10.514154	10.514187	10.514220	10.514252	10.514285	49	3.
11	10.514318	10.514351	10.514383	10.514416	10.514449	10.514482	10.514514	10.514547	10.514580	10.514613	10.514646	10.514678	48	4.
12	10.514711	10.514744	10.514777	10.514810	10.514842	10.514875	10.514908	10.514941	10.514974	10.515006	10.515039	10.515072	47	1 =
13	10.515105	10.515138	10.515171	10.515203	10.515236	10.515269	10.515302	10.515335	10.515368	10.515400	10.515433	10.515466	46	2.
14	10.515499	10.515532	10.515565	10.515598	10.515630	10.515663	10.515696	10.515729	10.515762	10.515795	10.515828	10.515860	45	3.
15	10.515893	10.515926	10.515959	10.515992	10.516025	10.516058	10.516091	10.516124	10.516157	10.516189	10.516222	10.516255	44	4.
16	10.516288	10.516321	10.516354	10.516387	10.516420	10.516453	10.516486	10.516519	10.516552	10.516585	10.516618	10.516651	43	1 =
17	10.516683	10.516716	10.516749	10.516782	10.516815	10.516848	10.516881	10.516914	10.516947	10.516980	10.517013	10.517046	42	2.
18	10.517079	10.517112	10.517145	10.517178	10.517211	10.517244	10.517277	10.517310	10.517343	10.517376	10.517409	10.517442	41	3.
19	10.517475	10.517508	10.517541	10.517574	10.517607	10.517640	10.517673	10.517706	10.517739	10.517772	10.517805	10.517838	40	4.
20	10.517872	10.517905	10.517938	10.517971	10.518004	10.518037	10.518070	10.518103	10.518136	10.518169	10.518202	10.518235	39	1 =
21	10.518268	10.518302	10.518335	10.518368	10.518401	10.518434	10.518467	10.518500	10.518533	10.518566	10.518599	10.518633	38	2.
22	10.518666	10.518699	10.518732	10.518765	10.518798	10.518831	10.518864	10.518898	10.518931	10.518964	10.518997	10.519030	37	3.
23	10.519063	10.519097	10.519130	10.519163	10.519196	10.519229	10.519262	10.519296	10.519329	10.519362	10.519395	10.519428	36	4.
24	10.519461	10.519495	10.519528	10.519561	10.519594	10.519627	10.519661	10.519694	10.519727	10.519760	10.519793	10.519827	35	1 =
25	10.519860	10.519893	10.519926	10.519960	10.519993	10.520026	10.520059	10.520092	10.520126	10.520159	10.520192	10.520225	34	2.
26	10.520259	10.520292	10.520325	10.520358	10.520392	10.520425	10.520458	10.520492	10.520525	10.520559	10.520591	10.520625	33	3.
27	10.520658	10.520691	10.520725	10.520758	10.520791	10.520824	10.520858	10.520891	10.520924	10.520958	10.520991	10.521024	32	4.
28	10.521058	10.521091	10.521124	10.521158	10.521191	10.521224	10.521258	10.521291	10.521324	10.521358	10.521391	10.521424	31	1 =
29	10.521458	10.521491	10.521524	10.521558	10.521591	10.521624	10.521658	10.521691	10.521725	10.521758	10.521791	10.521825	30	2.
30	10.521858	10.521892	10.521925	10.521958	10.521992	10.522025	10.522059	10.522092	10.522125	10.522159	10.522192	10.522226	29	3.
31	10.522259	10.522292	10.522326	10.522359	10.522393	10.522426	10.522460	10.522493	10.522526	10.522560	10.522593	10.522627	28	4.
32	10.522660	10.522694	10.522727	10.522761	10.522794	10.522828	10.522861	10.522895	10.522928	10.522962	10.522995	10.523029	27	1 =
33	10.523062	10.523095	10.523129	10.523162	10.523196	10.523229	10.523263	10.523296	10.523330	10.523364	10.523397	10.523431	26	2.
34	10.523464	10.523498	10.523531	10.523565	10.523598	10.523632	10.523665	10.523699	10.523732	10.523766	10.523799	10.523833	25	3.
35	10.523867	10.523900	10.523934	10.523967	10.524001	10.524034	10.524068	10.524102	10.524135	10.524169	10.524202	10.524236	24	4.
36	10.524270	10.524303	10.524337	10.524370	10.524404	10.524438	10.524471	10.524505	10.524538	10.524572	10.524606	10.524639	23	1 =
37	10.524673	10.524706	10.524740	10.524774	10.524807	10.524841	10.524875	10.524908	10.524942	10.524976	10.525009	10.525043	22	2.
38	10.525077	10.525110	10.525144	10.525178	10.525211	10.525245	10.525279	10.525312	10.525346	10.525380	10.525413	10.525447	21	3.
39	10.525481	10.525514	10.525548	10.525582	10.525616	10.525649	10.525683	10.525717	10.525750	10.525784	10.525818	10.525852	20	4.
40	10.525885	10.525919	10.525953	10.525987	10.526020	10.526054	10.526088	10.526121	10.526155	10.526189	10.526223	10.526257	19	1 =
41	10.526290	10.526324	10.526358	10.526392	10.526425	10.526459	10.526493	10.526527	10.526561	10.526594	10.526628	10.526662	18	2.
42	10.526696	10.526729	10.526763	10.526797	10.526831	10.526865	10.526899	10.526932	10.526966	10.527000	10.527034	10.527068	17	3.
43	10.527101	10.527135	10.527169	10.527203	10.527237	10.527271	10.527305	10.527338	10.527372	10.527406	10.527440	10.527474	16	4.
44	10.527508	10.527542	10.527575	10.527609	10.527643	10.527677	10.527711	10.527745	10.527779	10.527813	10.527847	10.527880	15	1 =
45	10.527914	10.527948	10.527982	10.528016	10.528050	10.528084	10.528118	10.528152	10.528186	10.528220	10.528254	10.528287	14	2.
46	10.528321	10.528355	10.528389	10.528423	10.528457	10.528491	10.528525	10.528559	10.528593	10.528627	10.528661	10.528695	13	3.
47	10.528729	10.528763	10.528797	10.528831	10.528865	10.528899	10.528933	10.528967	10.529001	10.529035	10.529069	10.529103	12	4.
48	10.529137	10.529171	10.529205	10.529239	10.529273	10.529307	10.529341	10.529375	10.529409	10.529443	10.529477	10.529511	11	1 =
49	10.529545	10.529579	10.529613	10.529647	10.529681	10.529715	10.529749	10.529784	10.529818	10.529852	10.529886	10.529920	10	2.
50	10.529954	10.529988	10.530022	10.530056	10.530090	10.530124	10.530158	10.530192	10.530227	10.530261	10.530295	10.530329	9	3.
51	10.530363	10.530397	10.530431	10.530465	10.530500	10.530534	10.530568	10.530602	10.530636	10.530670	10.530704	10.530738	8	4.
52	10.530773	10.530807	10.530841	10.530875	10.530909	10.530943	10.530978	10.531012	10.531046	10.531080	10.531114	10.531148	7	1 =
53	10.531183	10.531217	10.531251	10.531285	10.531319	10.531354	10.531388	10.531422	10.531456	10.531490	10.531525	10.531559	6	2.
54	10.531593	10.531627	10.531662	10.531696	10.531730	10.531764	10.531798	10.531833	10.531867	10.531901	10.531935	10.531970	5	3.
55	10.532004	10.532038	10.532072	10.532107	10.532141	10.532175	10.532210	10.532244	10.532278	10.532312	10.532347	10.532381	4	4.
56	10.532415	10.532449	10.532484	10.532518	10.532552	10.532587	10.532621	10.532655	10.532690	10.532724	10.532758	10.532793	3	1 =
57	10.532827	10.532861	10.532896	10.532930	10.532964	10.532999	10.533033	10.533067	10.533102	10.533136	10.533170	10.533205	2	2.
58	10.533239	10.533273	10.533308	10.533342	10.533377	10.533411	10.533445	10.533480	10.533514	10.533548	10.533583	10.533617	1	3.
59	10.533652	10.533686	10.533720	10.533755	10.533789	10.533824	10.533858	10.533892	10.533927	10.533961	10.533996	10.534030	0	4.
Minutes	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proportional Parts
Co-secant of 17 degrees, or Secant of 107 degrees.														

LOGARITHMIC SECANTS.

Secant of 73 degrees, or Co-secant of 163 degrees.													Minutes	Proport. parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
10. 534065	534099	534133	534168	534202	534237	534271	534306	534340	534375	534409	534444	59	1" = 7	
10. 534478	534513	534547	534581	534616	534650	534685	534719	534754	534788	534823	534857	58	2. 14	
10. 534892	534926	534961	534995	535030	535064	535099	535134	535168	535203	535237	535272	57	3. 21	
10. 535306	535341	535375	535410	535444	535479	535513	535548	535583	535617	535652	535686	56	4. 28	
10. 535721	535755	535790	535825	535859	535894	535928	535963	535998	536032	536067	536101	55	1" = 7	
10. 536136	536171	536205	536240	536275	536309	536344	536378	536413	536448	536482	536517	54	2. 14	
10. 536552	536586	536621	536656	536690	536725	536760	536794	536829	536864	536898	536933	53	3. 21	
10. 536968	537003	537037	537072	537107	537141	537176	537211	537245	537280	537315	537349	52	4. 28	
10. 537384	537419	537454	537488	537523	537558	537593	537627	537662	537697	537732	537766	51	1" = 7	
10. 537801	537836	537871	537905	537940	537975	538010	538044	538079	538114	538149	538184	50	2. 14	
10. 538218	538253	538288	538323	538358	538392	538427	538462	538497	538532	538566	538601	49	3. 21	
10. 538636	538671	538706	538741	538775	538810	538845	538880	538915	538950	538985	539019	48	4. 28	
10. 539054	539089	539124	539159	539194	539229	539264	539298	539333	539368	539403	539438	47	1" = 7	
10. 539473	539508	539543	539578	539613	539648	539682	539717	539752	539787	539822	539857	46	2. 14	
10. 539892	539927	539962	539997	540032	540067	540102	540137	540172	540207	540242	540277	45	3. 21	
10. 540312	540347	540382	540417	540452	540487	540522	540557	540592	540627	540662	540697	44	4. 28	
10. 540732	540767	540802	540837	540872	540907	540942	540977	541012	541047	541082	541117	43	1" = 7	
10. 541152	541187	541222	541257	541292	541327	541362	541397	541433	541468	541503	541538	42	2. 14	
10. 541573	541608	541643	541678	541713	541748	541783	541818	541854	541889	541924	541959	41	3. 21	
10. 541994	542029	542064	542100	542135	542170	542205	542240	542275	542310	542346	542381	40	4. 28	
10. 542416	542451	542486	542521	542557	542592	542627	542662	542697	542733	542768	542803	39	1" = 7	
10. 542838	542873	542908	542944	542979	543014	543049	543085	543120	543155	543190	543226	38	2. 14	
10. 543261	543296	543331	543366	543402	543437	543472	543508	543543	543578	543613	543649	37	3. 21	
10. 543684	543719	543754	543790	543825	543860	543896	543931	543966	544001	544037	544072	36	4. 28	
10. 544107	544143	544178	544213	544249	544284	544319	544355	544390	544425	544461	544496	35	1" = 7	
10. 544531	544567	544602	544637	544673	544708	544744	544779	544814	544850	544885	544920	34	2. 14	
10. 544956	544991	545027	545062	545097	545133	545168	545204	545239	545274	545310	545345	33	3. 21	
10. 545381	545416	545452	545487	545522	545558	545593	545629	545664	545700	545735	545771	32	4. 28	
10. 545806	545842	545877	545912	545948	545983	546019	546054	546090	546125	546161	546196	31	1" = 7	
10. 546232	546267	546303	546338	546374	546409	546445	546480	546516	546552	546587	546623	30	2. 14	
10. 546658	546694	546729	546765	546800	546836	546871	546907	546943	546978	547014	547049	29	3. 21	
10. 547085	547120	547156	547192	547227	547263	547298	547334	547370	547405	547441	547476	28	4. 28	
10. 547512	547548	547583	547619	547655	547690	547726	547761	547797	547833	547868	547904	27	1" = 7	
10. 547940	547975	548011	548047	548082	548118	548154	548189	548225	548261	548296	548332	26	2. 14	
10. 548368	548403	548439	548475	548511	548546	548582	548618	548653	548689	548725	548761	25	3. 21	
10. 548796	548832	548868	548904	548939	548975	549011	549046	549082	549118	549154	549190	24	4. 29	
10. 549225	549261	549297	549333	549368	549404	549440	549476	549512	549547	549583	549619	23	1" = 7	
10. 549655	549691	549726	549762	549798	549834	549870	549906	549941	549977	550013	550049	22	2. 14	
10. 550085	550121	550156	550192	550228	550264	550300	550336	550372	550407	550443	550479	21	3. 22	
10. 550515	550551	550587	550623	550659	550695	550730	550766	550802	550838	550874	550910	20	4. 29	
10. 550946	550982	551018	551054	551090	551126	551162	551197	551233	551269	551305	551341	19	1" = 7	
10. 551377	551413	551449	551485	551521	551557	551593	551629	551665	551701	551737	551773	18	2. 14	
10. 551809	551845	551881	551917	551953	551989	552025	552061	552097	552133	552169	552205	17	3. 22	
10. 552241	552277	552313	552349	552385	552421	552457	552493	552529	552565	552601	552637	16	4. 29	
10. 552674	552710	552746	552782	552818	552854	552891	552927	552963	552999	553035	553071	15	1" = 7	
10. 553107	553143	553179	553215	553252	553288	553324	553360	553396	553432	553469	553505	14	2. 14	
10. 553541	553577	553613	553649	553686	553722	553758	553794	553830	553866	553903	553939	13	3. 22	
10. 553975	554011	554047	554084	554120	554156	554192	554228	554265	554301	554337	554373	12	4. 29	
10. 554410	554446	554482	554518	554555	554591	554627	554663	554700	554736	554772	554808	11	1" = 7	
10. 554845	554881	554917	554954	554990	555026	555062	555099	555135	555171	555208	555244	10	2. 15	
10. 555280	555317	555353	555389	555425	555462	555498	555534	555571	555607	555644	555680	9	3. 22	
10. 555716	555753	555789	555825	555862	555898	555934	555971	556007	556044	556080	556116	8	4. 29	
10. 556153	556189	556226	556262	556298	556335	556371	556408	556444	556480	556517	556553	7	1" = 7	
10. 556590	556626	556663	556699	556735	556772	556808	556845	556881	556918	556954	556991	6	2. 15	
10. 557027	557064	557100	557137	557173	557210	557246	557283	557319	557356	557392	557429	5	3. 22	
10. 557465	557502	557538	557575	557611	557648	557684	557721	557757	557794	557830	557867	4	4. 29	
10. 557903	557940	557977	558013	558050	558086	558123	558159	558196	558233	558269	558306	3	1" = 7	
10. 558342	558379	558416	558452	558489	558525	558562	558599	558635	558672	558708	558745	2	2. 15	
10. 558782	558818	558855	558892	558928	558965	559002	559038	559075	559112	559148	559185	1	3. 22	
10. 559222	559258	559295	559332	559368	559405	559442	559478	559515	559552	559588	559625	0	4. 29	
60	55	50	45	40	35	30	25	20	15	10	5	Minutes	Proport. parts.	
Co-secant of 16 degrees, or Secant of 106 degrees.														

LOGARITHMIC SECANTS.

Secant of 74 degrees, or Co-secant of 164 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	
0	10.559662	559699	559735	559772	559809	559845	559882	559919	559956	559992	560029	560066	59	
1	10.560103	560139	560176	560213	560250	560287	560323	560360	560397	560434	560470	560507	58	
2	10.560544	560581	560618	560654	560691	560728	560765	560802	560838	560875	560912	560949	57	
3	10.560986	561023	561059	561096	561133	561170	561207	561244	561281	561317	561354	561391	56	
4	10.561428	561465	561502	561539	561576	561612	561649	561686	561723	561760	561797	561834	55	
5	10.561871	561908	561945	561982	562018	562055	562092	562129	562166	562203	562240	562277	54	
6	10.562314	562351	562388	562425	562462	562499	562536	562573	562610	562647	562684	562721	53	
7	10.562758	562795	562832	562869	562906	562943	562980	563017	563054	563091	563128	563165	52	
8	10.563202	563239	563276	563313	563350	563387	563424	563461	563498	563535	563573	563610	51	
9	10.563647	563684	563721	563758	563795	563832	563869	563906	563943	563981	564018	564055	50	
10	10.564092	564129	564166	564203	564240	564278	564315	564352	564389	564426	564463	564500	49	
11	10.564538	564575	564612	564649	564686	564723	564761	564798	564835	564872	564909	564947	48	
12	10.564984	565021	565058	565095	565133	565170	565207	565244	565282	565319	565356	565393	47	
13	10.565431	565468	565505	565542	565580	565617	565654	565691	565729	565766	565803	565840	46	
14	10.565878	565915	565952	565990	566027	566064	566101	566139	566176	566213	566251	566288	45	
15	10.566325	566363	566400	566437	566475	566512	566549	566587	566624	566661	566699	566736	44	
16	10.566774	566811	566848	566886	566923	566960	566998	567035	567073	567110	567147	567185	43	
17	10.567222	567260	567297	567335	567372	567409	567447	567484	567522	567559	567597	567634	42	
18	10.567671	567709	567746	567784	567821	567859	567896	567934	567971	568009	568046	568084	41	
19	10.568121	568159	568196	568234	568271	568309	568346	568384	568421	568459	568496	568534	40	
20	10.568571	568609	568646	568684	568721	568759	568797	568834	568872	568909	568947	568984	39	
21	10.569022	569060	569097	569135	569172	569210	569248	569285	569323	569360	569398	569436	38	
22	10.569473	569511	569548	569586	569624	569661	569699	569737	569774	569812	569850	569887	37	
23	10.569925	569963	570000	570038	570076	570113	570151	570189	570226	570264	570302	570339	36	
24	10.570377	570415	570453	570490	570528	570566	570603	570641	570679	570717	570754	570792	35	
25	10.570830	570868	570905	570943	570981	571019	571056	571094	571132	571170	571208	571245	34	
26	10.571283	571321	571359	571396	571434	571472	571510	571548	571586	571623	571661	571699	33	
27	10.571737	571775	571813	571850	571888	571926	571964	572002	572040	572077	572115	572153	32	
28	10.572191	572229	572267	572305	572343	572381	572418	572456	572494	572532	572570	572608	31	
29	10.572646	572684	572722	572760	572798	572835	572873	572911	572949	572987	573025	573063	30	
30	10.573101	573139	573177	573215	573253	573291	573329	573367	573405	573443	573481	573519	29	
31	10.573557	573595	573633	573671	573709	573747	573785	573823	573861	573899	573937	573975	28	
32	10.574013	574051	574089	574127	574165	574203	574242	574280	574318	574356	574394	574432	27	
33	10.574470	574508	574546	574584	574622	574661	574699	574737	574775	574813	574851	574889	26	
34	10.574927	574966	575004	575042	575080	575118	575156	575194	575233	575271	575309	575347	25	
35	10.575385	575423	575462	575500	575538	575576	575614	575653	575691	575729	575767	575805	24	
36	10.575844	575882	575920	575958	575997	576035	576073	576111	576150	576188	576226	576264	23	
37	10.576303	576341	576379	576417	576456	576494	576532	576570	576609	576647	576685	576724	22	
38	10.576762	576800	576839	576877	576915	576954	576992	577030	577069	577107	577145	577184	21	
39	10.577222	577260	577299	577337	577375	577414	577452	577490	577529	577567	577606	577644	20	
40	10.577682	577721	577759	577798	577836	577874	577913	577951	577990	578028	578067	578105	19	
41	10.578143	578182	578220	578259	578297	578336	578374	578413	578451	578490	578528	578566	18	
42	10.578605	578643	578682	578720	578759	578797	578836	578874	578913	578951	578990	579028	17	
43	10.579067	579105	579144	579183	579221	579260	579298	579337	579375	579414	579452	579491	16	
44	10.579530	579568	579607	579645	579684	579722	579761	579800	579838	579877	579915	579954	15	
45	10.579993	580031	580070	580109	580147	580186	580224	580263	580302	580340	580379	580418	14	
46	10.580456	580495	580534	580572	580611	580650	580688	580727	580766	580804	580843	580882	13	
47	10.580920	580959	580998	581037	581075	581114	581153	581191	581230	581269	581308	581346	12	
48	10.581385	581424	581463	581501	581540	581579	581618	581657	581695	581734	581773	581812	11	
49	10.581850	581889	581928	581967	582006	582044	582083	582122	582161	582200	582239	582277	10	
50	10.582316	582355	582394	582433	582472	582510	582549	582588	582627	582666	582705	582744	9	
51	10.582783	582821	582860	582899	582938	582977	583016	583055	583094	583133	583172	583210	8	
52	10.583249	583288	583327	583366	583405	583444	583483	583522	583561	583600	583639	583678	7	
53	10.583717	583756	583795	583834	583873	583912	583951	583990	584029	584068	584107	584146	6	
54	10.584185	584224	584263	584302	584341	584380	584419	584458	584497	584536	584575	584614	5	
55	10.584653	584692	584731	584770	584809	584848	584888	584927	584966	585005	585044	585083	4	
56	10.585122	585161	585200	585240	585279	585318	585357	585396	585435	585474	585513	585553	3	
57	10.585592	585631	585670	585709	585748	585788	585827	585866	585905	585944	585983	586023	2	
58	10.586062	586101	586140	586179	586218	586258	586297	586336	586376	586415	586454	586493	1	
59	10.586533	586572	586611	586650	586690	586729	586768	586807	586847	586886	586925	586964	0	
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'		
Co-secant of 15 degrees, or Secant of 105 degrees.														
Minutes														Minutes

LOGARITHMIC SECANTS.

Secant of 75 degrees, or Co-secant of 165 degrees.												Minutes	Proport. parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
87004	87043	87082	87122	87161	87200	87240	87279	87318	87357	87397	87436	59	1" = 8
87475	87515	87554	87593	87633	87672	87712	87751	87790	87830	87869	87908	58	2. 16
87948	87987	88027	88066	88105	88145	88184	88224	88263	88302	88342	88381	57	3. 24
88421	88460	88499	88539	88578	88618	88657	88697	88736	88776	88815	88855	56	4. 32
88894	88933	88973	89012	89052	89091	89131	89170	89210	89249	89289	89328	55	1" = 8
89368	89407	89447	89487	89526	89566	89605	89645	89684	89724	89763	89803	54	2. 16
89842	89882	89922	89961	90001	90040	90080	90120	90159	90199	90238	90278	53	3. 24
90318	90357	90397	90436	90476	90515	90555	90595	90635	90674	90714	90754	52	4. 32
90793	90833	90873	90912	90952	90992	91031	91071	91111	91150	91190	91230	51	1" = 8
91269	91309	91349	91388	91428	91468	91508	91547	91587	91627	91667	91706	50	2. 16
91746	91786	91826	91865	91905	91945	91985	92024	92064	92104	92144	92184	49	3. 24
92223	92263	92303	92343	92383	92422	92462	92502	92542	92582	92622	92661	48	4. 32
92701	92741	92781	92821	92861	92901	92940	92980	93020	93060	93100	93140	47	1" = 8
93180	93220	93259	93299	93339	93379	93419	93459	93499	93539	93579	93619	46	2. 16
93659	93699	93739	93779	93818	93858	93898	93938	93978	94018	94058	94098	45	3. 24
94138	94178	94218	94258	94298	94338	94378	94418	94458	94498	94538	94578	44	4. 32
94618	94658	94698	94738	94779	94819	94859	94899	94939	94979	95019	95059	43	1" = 8
95099	95139	95179	95219	95259	95299	95339	95379	95419	95459	95499	95539	42	2. 16
95580	95620	95661	95701	95741	95781	95821	95861	95901	95942	95982	96022	41	3. 24
96062	96102	96142	96183	96223	96263	96303	96343	96384	96424	96464	96504	40	4. 32
96545	96585	96625	96665	96705	96746	96786	96826	96866	96907	96947	96987	39	1" = 8
97028	97068	97108	97148	97189	97229	97269	97310	97350	97390	97430	97471	38	2. 16
97511	97551	97592	97632	97672	97713	97753	97793	97834	97874	97914	97955	37	3. 24
97995	98036	98076	98116	98157	98197	98237	98278	98318	98359	98399	98439	36	4. 32
98480	98520	98561	98601	98642	98682	98722	98763	98803	98844	98884	98925	35	1" = 8
98965	99006	99046	99087	99127	99168	99208	99249	99289	99330	99370	99411	34	2. 16
99451	99492	99532	99573	99613	99654	99694	99735	99775	99816	99856	99897	33	3. 24
99937	99978	100019	100059	100100	100140	100181	100222	100262	100303	100343	100384	32	4. 32
100425	100465	100506	100546	100587	100628	100668	100709	100750	100790	100831	100871	31	1" = 8
100912	100953	100993	101034	101075	101115	101156	101197	101238	101278	101319	101360	30	2. 16
101401	101441	101482	101522	101563	101604	101645	101685	101726	101767	101808	101848	29	3. 24
101889	101930	101971	102011	102052	102093	102134	102174	102215	102256	102297	102338	28	4. 32
102378	102419	102460	102501	102542	102583	102623	102664	102705	102746	102787	102828	27	1" = 8
102868	102909	102950	102991	103032	103073	103114	103154	103195	103236	103277	103318	26	2. 16
103359	103400	103441	103482	103523	103564	103604	103645	103686	103727	103768	103809	25	3. 24
103850	103891	103932	103973	104014	104055	104096	104137	104178	104219	104260	104301	24	4. 32
104342	104383	104424	104465	104506	104547	104588	104629	104670	104711	104752	104793	23	1" = 8
104834	104875	104916	104957	104998	105039	105081	105122	105163	105204	105245	105286	22	2. 16
105327	105368	105409	105450	105492	105533	105574	105615	105656	105697	105738	105779	21	3. 24
105821	105862	105903	105944	105985	106026	106068	106109	106150	106191	106232	106274	20	4. 32
106315	106356	106397	106438	106480	106521	106562	106603	106644	106686	106727	106768	19	1" = 8
106809	106851	106892	106933	106974	107016	107057	107098	107140	107181	107222	107263	18	2. 16
107305	107346	107387	107429	107470	107511	107553	107594	107635	107677	107718	107759	17	3. 24
107801	107842	107883	107925	107966	108007	108049	108090	108132	108173	108214	108256	16	4. 32
108297	108339	108380	108421	108463	108504	108546	108587	108629	108670	108711	108753	15	1" = 8
108794	108836	108877	108919	108960	109002	109043	109085	109126	109168	109209	109251	14	2. 16
109292	109334	109375	109417	109458	109500	109541	109583	109624	109666	109707	109749	13	3. 24
109790	109832	109873	109915	109957	110000	110041	110083	110123	110165	110206	110248	12	4. 32
110289	110331	110373	110414	110456	110497	110539	110581	110622	110664	110706	110747	11	1" = 8
110789	110831	110872	110914	110956	110997	111039	111081	111122	111164	111206	111247	10	2. 16
111289	111331	111372	111414	111456	111498	111539	111581	111623	111665	111706	111748	9	3. 24
111790	111832	111873	111915	111957	112000	112041	112082	112124	112166	112208	112249	8	4. 32
112291	112333	112375	112417	112459	112500	112542	112584	112626	112668	112710	112751	7	1" = 8
112793	112835	112877	112919	112961	113003	113045	113086	113128	113170	113212	113254	6	2. 16
113296	113338	113380	113422	113464	113506	113547	113589	113631	113673	113715	113757	5	3. 24
113799	113841	113883	113925	113967	114009	114051	114093	114135	114177	114219	114261	4	4. 32
114303	114345	114387	114429	114471	114513	114555	114597	114639	114681	114723	114765	3	1" = 8
114808	114850	114892	114934	114976	115018	115060	115102	115144	115186	115228	115271	2	2. 16
115313	115355	115397	115439	115481	115523	115565	115608	115650	115692	115734	115776	1	3. 24
115818	115861	115903	115945	115987	116029	116072	116114	116156	116198	116240	116283	0	4. 32
0°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-secant of 14 degrees, or Secant of 104 degrees.												Minutes	Proport. parts.

LOGARITHMIC SECANTS.

Minutes		Secant of 78 degrees, or Co-secant of 168 degrees.													Minutes		
		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'				
0	10.682121	682171	682220	682270	682319	682369	682418	682468	682517	682567	682617	682666	59	1			
1	10.682716	682765	682815	682865	682914	682964	683014	683063	683113	683162	683212	683262	58	2			
2	10.683311	683361	683411	683460	683510	683560	683610	683659	683709	683759	683808	683858	57	3			
3	10.683908	683958	684007	684057	684107	684157	684206	684256	684306	684356	684406	684455	56	4			
4	10.684505	684555	684605	684655	684705	684754	684804	684854	684904	684954	685004	685054	55	5			
5	10.685103	685153	685203	685253	685303	685353	685403	685453	685503	685553	685603	685653	54	6			
6	10.685702	685752	685802	685852	685902	685952	686002	686052	686102	686152	686202	686252	53	7			
7	10.686302	686352	686402	686453	686503	686553	686603	686653	686703	686753	686803	686853	52	8			
8	10.686903	686953	687003	687054	687104	687154	687204	687254	687304	687354	687404	687455	51	9			
9	10.687505	687555	687605	687655	687706	687756	687806	687856	687906	687957	688007	688057	50	10			
10	10.688107	688158	688208	688258	688308	688359	688409	688459	688509	688559	688609	688660	49	11			
11	10.688711	688761	688811	688862	688912	688962	689013	689063	689114	689164	689214	689265	48	12			
12	10.689315	689365	689416	689466	689517	689567	689617	689668	689718	689769	689819	689870	47	13			
13	10.689920	689971	690021	690072	690122	690173	690223	690274	690324	690375	690425	690476	46	14			
14	10.690526	690577	690627	690678	690728	690779	690830	690880	690931	690981	691032	691083	45	15			
15	10.691133	691184	691234	691285	691336	691386	691437	691488	691538	691589	691640	691690	44	16			
16	10.691741	691792	691842	691893	691944	691994	692045	692096	692147	692197	692248	692299	43	17			
17	10.692350	692400	692451	692502	692553	692604	692654	692705	692756	692806	692857	692908	42	18			
18	10.692959	693010	693061	693112	693163	693213	693264	693315	693366	693417	693468	693519	41	19			
19	10.693569	693621	693672	693723	693773	693824	693875	693926	693977	694028	694079	694130	40	20			
20	10.694181	694232	694283	694334	694385	694436	694487	694538	694589	694640	694691	694742	39	21			
21	10.694793	694844	694895	694947	694998	695049	695100	695151	695202	695253	695304	695355	38	22			
22	10.695407	695458	695509	695560	695611	695662	695713	695765	695816	695867	695918	695969	37	23			
23	10.696021	696072	696123	696174	696225	696277	696328	696379	696430	696482	696533	696584	36	24			
24	10.696636	696687	696738	696789	696841	696892	696943	696995	697046	697097	697149	697200	35	25			
25	10.697251	697303	697354	697406	697457	697508	697560	697611	697663	697714	697765	697817	34	26			
26	10.697868	697920	697971	698023	698074	698126	698177	698228	698280	698331	698383	698434	33	27			
27	10.698486	698537	698589	698641	698692	698744	698795	698847	698898	698950	699001	699053	32	28			
28	10.699105	699156	699208	699259	699311	699363	699414	699466	699518	699569	699621	699673	31	29			
29	10.699724	699776	699828	699879	699931	699983	700034	700086	700138	700189	700241	700293	30	30			
30	10.700345	700396	700448	700500	700552	700603	700655	700707	700759	700811	700862	700914	29	31			
31	10.700966	701018	701070	701122	701173	701225	701277	701329	701381	701433	701485	701536	28	32			
32	10.701588	701640	701692	701744	701796	701848	701900	701952	702004	702056	702108	702160	27	33			
33	10.702212	702264	702316	702368	702420	702472	702524	702576	702628	702680	702732	702784	26	34			
34	10.702836	702888	702940	702992	703044	703096	703148	703200	703252	703304	703357	703409	25	35			
35	10.703461	703513	703565	703617	703670	703722	703774	703826	703878	703930	703983	704035	24	36			
36	10.704087	704139	704191	704244	704296	704348	704400	704453	704505	704557	704609	704662	23	37			
37	10.704714	704766	704819	704871	704923	704976	705028	705080	705133	705185	705237	705290	22	38			
38	10.705342	705394	705447	705499	705551	705604	705656	705709	705761	705814	705866	705918	21	39			
39	10.705971	706023	706076	706128	706181	706233	706286	706338	706391	706443	706496	706548	20	40			
40	10.706601	706653	706706	706758	706811	706863	706916	706969	707021	707074	707126	707179	19	41			
41	10.707231	707284	707337	707389	707442	707495	707547	707600	707653	707705	707758	707811	18	42			
42	10.707863	707916	707969	708021	708074	708127	708179	708232	708285	708338	708390	708443	17	43			
43	10.708496	708549	708601	708654	708707	708760	708813	708865	708918	708971	709024	709077	16	44			
44	10.709130	709182	709235	709288	709341	709394	709447	709500	709553	709606	709658	709711	15	45			
45	10.709764	709817	709870	709923	709976	710029	710082	710135	710188	710241	710294	710347	14	46			
46	10.710400	710453	710506	710559	710612	710665	710718	710771	710824	710877	710930	710983	13	47			
47	10.711036	711089	711143	711196	711249	711302	711355	711408	711461	711514	711568	711621	12	48			
48	10.711674	711727	711780	711833	711887	711940	711993	712046	712099	712153	712206	712259	11	49			
49	10.712312	712366	712419	712472	712525	712579	712632	712685	712739	712792	712845	712899	10	50			
50	10.712952	713005	713059	713112	713165	713219	713272	713325	713379	713432	713486	713539	9	51			
51	10.713592	713646	713699	713753	713806	713860	713913	713966	714020	714073	714127	714180	8	52			
52	10.714234	714287	714341	714394	714448	714501	714555	714608	714662	714716	714769	714823	7	53			
53	10.714876	714930	714983	715037	715091	715144	715198	715251	715305	715359	715412	715466	6	54			
54	10.715520	715573	715627	715681	715734	715788	715842	715895	715949	716003	716057	716110	5	55			
55	10.716164	716218	716272	716325	716379	716433	716487	716540	716594	716648	716702	716756	4	56			
56	10.716809	716863	716917	716971	717025	717079	717133	717186	717240	717294	717348	717402	3	57			
57	10.717456	717510	717564	717618	717672	717726	717779	717833	717887	717941	717995	718049	2	58			
58	10.718103	718157	718211	718265	718319	718373	718427	718481	718535	718589	718644	718698	1	59			
59	10.718752	718806	718860	718914	718968	719022	719076	719130	719185	719239	719293	719347	0	60			
		60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'				
Co-secant of 11 degrees, or Secant of 101 degrees.																	
Minutes																Minutes	

LOGARITHMIC SECANTS.

Secant of 79 degrees, or Co-secant of 169 degrees.												Minutes	Proport. parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
10. 719401	719455	719509	719564	719618	719672	719726	719780	719835	719889	719943	719997	59	1° = 11
10. 720052	720106	720160	720214	720269	720323	720377	720431	720486	720540	720594	720649	58	2. 22
10. 720703	720757	720812	720866	720920	720975	721029	721083	721138	721192	721247	721301	57	3. 33
10. 721355	721410	721464	721519	721573	721628	721682	721736	721791	721845	721900	721954	56	4. 44
10. 722009	722063	722118	722172	722227	722281	722336	722391	722445	722500	722554	722609	55	1 = 11
10. 722663	722718	722773	722827	722882	722936	722991	723046	723100	723155	723210	723264	54	2. 22
10. 723319	723374	723428	723483	723538	723592	723647	723702	723756	723811	723866	723921	53	3. 33
10. 723975	724030	724085	724140	724195	724249	724304	724359	724414	724469	724523	724578	52	4. 44
10. 724633	724688	724743	724798	724852	724907	724962	725017	725072	725127	725182	725237	51	1 = 11
10. 725292	725347	725401	725456	725511	725566	725621	725676	725731	725786	725841	725896	50	2. 22
10. 725951	726006	726061	726116	726171	726226	726281	726336	726391	726446	726501	726556	49	3. 33
10. 726612	726667	726722	726777	726832	726888	726943	726998	727053	727108	727163	727218	48	4. 44
10. 727274	727329	727384	727439	727494	727549	727604	727659	727714	727769	727824	727879	47	1 = 11
10. 727936	727991	728046	728101	728156	728211	728266	728321	728376	728431	728486	728541	46	2. 22
10. 728600	728655	728710	728765	728820	728875	728930	728985	729040	729095	729150	729205	45	3. 33
10. 729265	729320	729375	729430	729485	729540	729595	729650	729705	729760	729815	729870	44	4. 44
10. 729931	729986	730041	730096	730151	730206	730261	730316	730371	730426	730481	730536	43	1 = 11
10. 730598	730653	730708	730763	730818	730873	730928	730983	731038	731093	731148	731203	42	2. 22
10. 731266	731321	731376	731431	731486	731541	731596	731651	731706	731761	731816	731871	41	3. 33
10. 731935	731990	732045	732100	732155	732210	732265	732320	732375	732430	732485	732540	40	4. 45
10. 732605	732660	732715	732770	732825	732880	732935	732990	733045	733100	733155	733210	39	1 = 11
10. 733277	733332	733387	733442	733497	733552	733607	733662	733717	733772	733827	733882	38	2. 22
10. 733949	734004	734059	734114	734169	734224	734279	734334	734389	734444	734499	734554	37	3. 34
10. 734622	734677	734732	734787	734842	734897	734952	735007	735062	735117	735172	735227	36	4. 45
10. 735297	735352	735407	735462	735517	735572	735627	735682	735737	735792	735847	735902	35	1 = 11
10. 735973	736028	736083	736138	736193	736248	736303	736358	736413	736468	736523	736578	34	2. 23
10. 736649	736704	736759	736814	736869	736924	736979	737034	737089	737144	737199	737254	33	3. 34
10. 737327	737382	737437	737492	737547	737602	737657	737712	737767	737822	737877	737932	32	4. 45
10. 738006	738061	738116	738171	738226	738281	738336	738391	738446	738501	738556	738611	31	1 = 11
10. 738686	738741	738796	738851	738906	738961	739016	739071	739126	739181	739236	739291	30	2. 23
10. 739367	739422	739477	739532	739587	739642	739697	739752	739807	739862	739917	739972	29	3. 34
10. 740049	740104	740159	740214	740269	740324	740379	740434	740489	740544	740599	740654	28	4. 45
10. 740732	740787	740842	740897	740952	741007	741062	741117	741172	741227	741282	741337	27	1 = 11
10. 741417	741472	741527	741582	741637	741692	741747	741802	741857	741912	741967	742022	26	2. 23
10. 742102	742157	742212	742267	742322	742377	742432	742487	742542	742597	742652	742707	25	3. 34
10. 742789	742844	742899	742954	743009	743064	743119	743174	743229	743284	743339	743394	24	4. 46
10. 743477	743532	743587	743642	743697	743752	743807	743862	743917	743972	744027	744082	23	1 = 12
10. 744166	744221	744276	744331	744386	744441	744496	744551	744606	744661	744716	744771	22	2. 24
10. 744856	744911	744966	745021	745076	745131	745186	745241	745296	745351	745406	745461	21	3. 35
10. 745547	745602	745657	745712	745767	745822	745877	745932	745987	746042	746097	746152	20	4. 46
10. 746239	746294	746349	746404	746459	746514	746569	746624	746679	746734	746789	746844	19	1 = 12
10. 746932	746987	747042	747097	747152	747207	747262	747317	747372	747427	747482	747537	18	2. 23
10. 747627	747682	747737	747792	747847	747902	747957	748012	748067	748122	748177	748232	17	3. 35
10. 748323	748378	748433	748488	748543	748598	748653	748708	748763	748818	748873	748928	16	4. 46
10. 749020	749075	749130	749185	749240	749295	749350	749405	749460	749515	749570	749625	15	1 = 12
10. 749718	749773	749828	749883	749938	750000	750060	750120	750180	750240	750300	750360	14	2. 23
10. 750417	750472	750527	750582	750637	750692	750747	750802	750857	750912	750967	751022	13	3. 35
10. 751117	751172	751227	751282	751337	751392	751447	751502	751557	751612	751667	751722	12	4. 47
10. 751809	751864	751919	751974	752029	752084	752139	752194	752249	752304	752359	752414	11	1 = 12
10. 752522	752577	752632	752687	752742	752797	752852	752907	752962	753017	753072	753127	10	2. 24
10. 753225	753280	753335	753390	753445	753500	753555	753610	753665	753720	753775	753830	9	3. 35
10. 753930	753985	754040	754095	754150	754205	754260	754315	754370	754425	754480	754535	8	4. 47
10. 754637	754692	754747	754802	754857	754912	754967	755022	755077	755132	755187	755242	7	1 = 12
10. 755344	755399	755454	755509	755564	755619	755674	755729	755784	755839	755894	755949	6	2. 24
10. 756053	756108	756163	756218	756273	756328	756383	756438	756493	756548	756603	756658	5	3. 36
10. 756763	756818	756873	756928	756983	757038	757093	757148	757203	757258	757313	757368	4	4. 47
10. 757474	757529	757584	757639	757694	757749	757804	757859	757914	757969	758024	758079	3	1 = 12
10. 758186	758241	758296	758351	758406	758461	758516	758571	758626	758681	758736	758791	2	2. 24
10. 758899	758954	759009	759064	759119	759174	759229	759284	759339	759394	759449	759504	1	3. 36
10. 759614	759669	759724	759779	759834	759889	759944	760000	760055	760110	760165	760220	0	4. 48
60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-secant of 10 degrees, or Secant of 100 degrees.												Minutes	Proport. parts.

LOGARITHMIC SECANTS.

Minutes		Seconds		Secant of 80 degrees, or Co-secant of 170 degrees.			Seconds		Minutes		Proport. parts.		Minutes		Seconds		Secant of 80 degrees, or Co-secant of 170 degrees.			Seconds		Minutes		Proport. parts.	
				0'	5'	10'																			
0	0	10.760330	10.760389	10.760449	45	1" = 12	15	0	10.771216	10.771277	10.771339	45	1"	15	0	10.771216	10.771277	10.771339	45	1"	15	0	10.771216	10.771277	10.771339
15	10	10.760509	10.760569	10.760628	30	2. 24	15	10	10.771400	10.771461	10.771522	30	2. 24	15	10	10.771400	10.771461	10.771522	30	2. 24	15	10	10.771400	10.771461	10.771522
30	10	10.760688	10.760748	10.760808	15	3. 36	30	10	10.771584	10.771645	10.771706	15	3. 36	30	10	10.771584	10.771645	10.771706	15	3. 36	30	10	10.771584	10.771645	10.771706
45	10	10.760867	10.760927	10.760987	0	4. 48	45	10	10.771768	10.771829	10.771890	0	4. 48	45	10	10.771768	10.771829	10.771890	0	4. 48	45	10	10.771768	10.771829	10.771890
1	0	10.761047	10.761107	10.761166	45	1. 12	16	0	10.771952	10.772013	10.772075	45	1. 12	16	0	10.771952	10.772013	10.772075	45	1. 12	16	0	10.771952	10.772013	10.772075
15	10	10.761226	10.761286	10.761346	30	2. 24	15	10	10.772136	10.772197	10.772259	30	2. 24	15	10	10.772136	10.772197	10.772259	30	2. 24	15	10	10.772136	10.772197	10.772259
30	10	10.761406	10.761466	10.761526	15	3. 36	30	10	10.772320	10.772382	10.772443	15	3. 36	30	10	10.772320	10.772382	10.772443	15	3. 36	30	10	10.772320	10.772382	10.772443
45	10	10.761585	10.761645	10.761705	0	4. 48	45	10	10.772505	10.772566	10.772628	0	4. 48	45	10	10.772505	10.772566	10.772628	0	4. 48	45	10	10.772505	10.772566	10.772628
2	0	10.761765	10.761825	10.761885	45	1. 12	17	0	10.772689	10.772750	10.772812	45	1. 12	17	0	10.772689	10.772750	10.772812	45	1. 12	17	0	10.772689	10.772750	10.772812
15	10	10.761945	10.762005	10.762065	30	2. 24	15	10	10.772873	10.772935	10.772993	30	2. 24	15	10	10.772873	10.772935	10.772993	30	2. 24	15	10	10.772873	10.772935	10.772993
30	10	10.762125	10.762185	10.762245	15	3. 36	30	10	10.773058	10.773120	10.773181	15	3. 36	30	10	10.773058	10.773120	10.773181	15	3. 36	30	10	10.773058	10.773120	10.773181
45	10	10.762305	10.762365	10.762425	0	4. 48	45	10	10.773243	10.773304	10.773366	0	4. 48	45	10	10.773243	10.773304	10.773366	0	4. 48	45	10	10.773243	10.773304	10.773366
3	0	10.762485	10.762545	10.762605	45	1. 12	18	0	10.773427	10.773489	10.773551	45	1. 12	18	0	10.773427	10.773489	10.773551	45	1. 12	18	0	10.773427	10.773489	10.773551
15	10	10.762665	10.762725	10.762785	30	2. 24	15	10	10.773612	10.773674	10.773735	30	2. 24	15	10	10.773612	10.773674	10.773735	30	2. 24	15	10	10.773612	10.773674	10.773735
30	10	10.762845	10.762905	10.762965	15	3. 36	30	10	10.773797	10.773859	10.773920	15	3. 36	30	10	10.773797	10.773859	10.773920	15	3. 36	30	10	10.773797	10.773859	10.773920
45	10	10.763025	10.763085	10.763145	0	4. 48	45	10	10.773982	10.774044	10.774105	0	4. 48	45	10	10.773982	10.774044	10.774105	0	4. 48	45	10	10.773982	10.774044	10.774105
4	0	10.763205	10.763265	10.763326	45	1. 12	19	0	10.774167	10.774229	10.774291	45	1. 12	19	0	10.774167	10.774229	10.774291	45	1. 12	19	0	10.774167	10.774229	10.774291
15	10	10.763386	10.763446	10.763506	30	2. 24	15	10	10.774352	10.774414	10.774476	30	2. 24	15	10	10.774352	10.774414	10.774476	30	2. 24	15	10	10.774352	10.774414	10.774476
30	10	10.763566	10.763626	10.763687	15	3. 36	30	10	10.774537	10.774599	10.774661	15	3. 36	30	10	10.774537	10.774599	10.774661	15	3. 36	30	10	10.774537	10.774599	10.774661
45	10	10.763747	10.763807	10.763867	0	4. 48	45	10	10.774723	10.774785	10.774846	0	4. 48	45	10	10.774723	10.774785	10.774846	0	4. 48	45	10	10.774723	10.774785	10.774846
5	0	10.763927	10.763988	10.764048	45	1. 12	20	0	10.774908	10.774970	10.775032	45	1. 12	20	0	10.774908	10.774970	10.775032	45	1. 12	20	0	10.774908	10.774970	10.775032
15	10	10.764108	10.764168	10.764229	30	2. 24	15	10	10.775094	10.775155	10.775217	30	2. 24	15	10	10.775094	10.775155	10.775217	30	2. 24	15	10	10.775094	10.775155	10.775217
30	10	10.764289	10.764349	10.764409	15	3. 36	30	10	10.775279	10.775341	10.775403	15	3. 36	30	10	10.775279	10.775341	10.775403	15	3. 36	30	10	10.775279	10.775341	10.775403
45	10	10.764470	10.764530	10.764590	0	4. 48	45	10	10.775465	10.775527	10.775589	0	4. 48	45	10	10.775465	10.775527	10.775589	0	4. 48	45	10	10.775465	10.775527	10.775589
6	0	10.764651	10.764711	10.764771	45	1. 12	21	0	10.775650	10.775712	10.775774	45	1. 12	21	0	10.775650	10.775712	10.775774	45	1. 12	21	0	10.775650	10.775712	10.775774
15	10	10.764832	10.764892	10.764952	30	2. 24	15	10	10.775836	10.775898	10.775960	30	2. 24	15	10	10.775836	10.775898	10.775960	30	2. 24	15	10	10.775836	10.775898	10.775960
30	10	10.765013	10.765073	10.765133	15	3. 36	30	10	10.776022	10.776084	10.776146	15	3. 36	30	10	10.776022	10.776084	10.776146	15	3. 36	30	10	10.776022	10.776084	10.776146
45	10	10.765194	10.765254	10.765315	0	4. 48	45	10	10.776208	10.776270	10.776332	0	4. 48	45	10	10.776208	10.776270	10.776332	0	4. 48	45	10	10.776208	10.776270	10.776332
7	0	10.765375	10.765435	10.765496	45	1. 12	22	0	10.776394	10.776456	10.776518	45	1. 12	22	0	10.776394	10.776456	10.776518	45	1. 12	22	0	10.776394	10.776456	10.776518
15	10	10.765556	10.765617	10.765677	30	2. 24	15	10	10.776580	10.776642	10.776704	30	2. 24	15	10	10.776580	10.776642	10.776704	30	2. 24	15	10	10.776580	10.776642	10.776704
30	10	10.765738	10.765798	10.765859	15	3. 36	30	10	10.776766	10.776828	10.776891	15	3. 36	30	10	10.776766	10.776828	10.776891	15	3. 36	30	10	10.776766	10.776828	10.776891
45	10	10.765919	10.765980	10.766040	0	4. 48	45	10	10.776953	10.777015	10.777077	0	4. 48	45	10	10.776953	10.777015	10.777077	0	4. 48	45	10	10.776953	10.777015	10.777077
8	0	10.766101	10.766161	10.766222	45	1. 12	23	0	10.777139	10.777201	10.777263	45	1. 12	23	0	10.777139	10.777201	10.777263	45	1. 12	23	0	10.777139	10.777201	10.777263
15	10	10.766282	10.766343	10.766403	30	2. 24	15	10	10.777325	10.777388	10.777450	30	2. 24	15	10	10.777325	10.777388	10.777450	30	2. 24	15	10	10.777325	10.777388	10.777450
30	10	10.766464	10.766525	10.766585	15	3. 36	30	10	10.777512	10.777574	10.777636	15	3. 36	30	10	10.777512	10.777574	10.777636	15	3. 36	30	10	10.777512	10.777574	10.777636
45	10	10.766646	10.766706	10.766767	0	4. 48	45	10	10.777699	10.777761	10.777823	0	4. 48	45	10	10.777699	10.777761	10.777823	0	4. 48	45	10	10.777699	10.777761	10.777823
9	0	10.766828	10.766888	10.766949	45	1. 12	24	0	10.777885	10.777948	10.778010	45	1. 12	24	0	10.777885	10.777948	10.778010	45	1. 12	24	0	10.777885	10.777948	10.778010
15	10	10.767010	10.767070	10.767131	30	2. 24	15	10	10.778072	10.778134	10.778197	30	2. 24	15	10	10.778072	10.778134	10.778197	30	2. 24	15	10	10.778072	10.778134	10.778197
30	10	10.767193	10.767252	10.767313	15	3. 36	30	10	10.778259	10.778321	10.778384	15	3. 36	30	10	10.778259	10.778321	10.778384	15	3. 36	30	10	10.778259	10.778321	10.778384
45	10	10.767374	10.767434	10.767495	0	4. 49	45	10	10.778446	10.778508	10.778571	0	4. 49	45	10	10.778446	10.778508	10.778571	0	4. 49	45	10	10.778446	10.778508	10.778571
10	0	10.767556	10.767617	10.767677	45	1. 12	25	0	10.778633	10.778695	10.778758	45	1. 12	25	0	10.778633	10.778695	10.778758	45	1. 12	25	0	10.778633	10.778695	10.778758
15	10	10.767738	10.767799	10.767860	30	2. 24	15	10	10.778820	10.778882	10.778945	30	2. 24	15	10	10.778820	10.778882	10.778945	30	2. 24	15	10	10.778820	10.778882	10.778945
30	10	10.767921	10.767981	10.768042	15	3. 36	30	10	10.779007	10.779070	10.779132	15	3. 36	30	10	10.779007	10.779070	10.779132	15	3. 36	30	10	10.779007	10.779070	10.779132
45	10	10.768103	10.768164	10.768225	0	4. 49	45	10	10.779194	10.779257	10.779319	0	4. 49	45	10	10.779194	10.779257	10.779319	0	4. 4					

LOGARITHMIC SECANTS.

Secant of 80 degrees, or Co-secant of 170 degrees.				Seconds Minutes	Proport. parts.	Secant of 80 degrees, or Co-secant of 170 degrees.				Seconds Minutes	Proport. parts.
0'	5'	10'				0'	5'	10'			
10.782391	10.782454	10.782517	45	1" = 13		10.793869	10.793934	10.793998	45	1" = 13	
10.782579	10.782642	10.782705	30	2. 25		10.794063	10.794128	10.794192	30	2. 26	
10.782768	10.782831	10.782894	15	3. 38		10.794257	10.794322	10.794387	15	3. 39	
10.782957	10.783020	10.783083	0 20	4. 50		10.794451	10.794516	10.794581	0 14	4. 52	
10.783146	10.783209	10.783272	45	1 = 13		10.794645	10.794710	10.794775	45	1 = 13	
10.783335	10.783398	10.783462	30	2. 25		10.794840	10.794905	10.794969	30	2. 26	
10.783525	10.783588	10.783651	15	3. 38		10.795034	10.795099	10.795164	15	3. 39	
10.783714	10.783777	10.783840	0 28	4. 50		10.795229	10.795294	10.795358	0 13	4. 52	
10.783903	10.783966	10.784030	45	1 = 13		10.795423	10.795488	10.795553	45	1 = 13	
10.784093	10.784156	10.784219	30	2. 25		10.795618	10.795683	10.795748	30	2. 26	
10.784282	10.784345	10.784409	15	3. 38		10.795813	10.795878	10.795943	15	3. 39	
10.784472	10.784535	10.784598	0 27	4. 51		10.796008	10.796073	10.796138	0 12	4. 52	
10.784662	10.784725	10.784788	45	1 = 13		10.796203	10.796268	10.796333	45	1 = 13	
10.784851	10.784915	10.784978	30	2. 25		10.796398	10.796463	10.796528	30	2. 26	
10.785041	10.785105	10.785168	15	3. 38		10.796593	10.796658	10.796723	15	3. 39	
10.785231	10.785295	10.785358	0 26	4. 51		10.796788	10.796853	10.796918	0 11	4. 52	
10.785421	10.785485	10.785548	45	1 = 13		10.796983	10.797048	10.797114	45	1 = 13	
10.785611	10.785675	10.785738	30	2. 25		10.797179	10.797244	10.797309	30	2. 26	
10.785802	10.785865	10.785928	15	3. 38		10.797374	10.797439	10.797505	15	3. 39	
10.785992	10.786055	10.786119	0 25	4. 51		10.797570	10.797635	10.797700	0 10	4. 52	
10.786182	10.786246	10.786309	45	1 = 13		10.797765	10.797831	10.797896	45	1 = 13	
10.786373	10.786436	10.786500	30	2. 25		10.797961	10.798026	10.798092	30	2. 26	
10.786563	10.786627	10.786690	15	3. 38		10.798157	10.798222	10.798288	15	3. 39	
10.786754	10.786818	10.786881	0 24	4. 51		10.798353	10.798418	10.798484	0 9	4. 52	
10.786945	10.787008	10.787072	45	1 = 13		10.798549	10.798614	10.798680	45	1 = 13	
10.787136	10.787199	10.787263	30	2. 25		10.798745	10.798811	10.798876	30	2. 26	
10.787326	10.787390	10.787454	15	3. 38		10.798941	10.799007	10.799072	15	3. 39	
10.787517	10.787581	10.787645	0 23	4. 51		10.799138	10.799203	10.799269	0 8	4. 52	
10.787709	10.787772	10.787836	45	1 = 13		10.799334	10.799400	10.799465	45	1 = 13	
10.787900	10.787963	10.788027	30	2. 26		10.799531	10.799596	10.799662	30	2. 26	
10.788091	10.788155	10.788218	15	3. 38		10.799727	10.799793	10.799858	15	3. 39	
10.788282	10.788346	10.788410	0 22	4. 51		10.799924	10.799989	10.800055	0 7	4. 52	
10.788474	10.788538	10.788601	45	1 = 13		10.800121	10.800186	10.800252	45	1 = 13	
10.788665	10.788729	10.788793	30	2. 26		10.800317	10.800383	10.800449	30	2. 26	
10.788857	10.788921	10.788985	15	3. 38		10.800514	10.800580	10.800646	15	3. 39	
10.789048	10.789112	10.789176	0 21	4. 51		10.800711	10.800777	10.800843	0 6	4. 53	
10.789240	10.789304	10.789368	45	1 = 13		10.800909	10.800974	10.801040	45	1 = 13	
10.789432	10.789496	10.789560	30	2. 26		10.801106	10.801172	10.801237	30	2. 26	
10.789624	10.789688	10.789752	15	3. 38		10.801303	10.801369	10.801435	15	3. 39	
10.789816	10.789880	10.789944	0 20	4. 51		10.801501	10.801566	10.801632	0 5	4. 53	
10.790008	10.790072	10.790136	45	1 = 13		10.801698	10.801764	10.801830	45	1 = 13	
10.790200	10.790265	10.790329	30	2. 26		10.801896	10.801962	10.802027	30	2. 26	
10.790393	10.790457	10.790521	15	3. 38		10.802093	10.802159	10.802225	15	3. 40	
10.790585	10.790649	10.790713	0 19	4. 51		10.802291	10.802357	10.802423	0 4	4. 53	
10.790778	10.790842	10.790906	45	1 = 13		10.802489	10.802555	10.802621	45	1 = 13	
10.790970	10.791034	10.791099	30	2. 26		10.802687	10.802753	10.802819	30	2. 26	
10.791163	10.791227	10.791291	15	3. 39		10.802885	10.802951	10.803017	15	3. 40	
10.791356	10.791420	10.791484	0 18	4. 51		10.803083	10.803149	10.803215	0 3	4. 53	
10.791548	10.791613	10.791677	45	1 = 13		10.803281	10.803347	10.803414	45	1 = 13	
10.791741	10.791806	10.791870	30	2. 26		10.803480	10.803546	10.803612	30	2. 26	
10.791934	10.791999	10.792063	15	3. 39		10.803678	10.803744	10.803810	15	3. 40	
10.792127	10.792192	10.792256	0 17	4. 51		10.803877	10.803943	10.804009	0 2	4. 53	
10.792320	10.792385	10.792449	45	1 = 13		10.804075	10.804141	10.804208	45	1 = 13	
10.792514	10.792578	10.792643	30	2. 26		10.804274	10.804340	10.804406	30	2. 27	
10.792707	10.792772	10.792836	15	3. 39		10.804473	10.804539	10.804605	15	3. 40	
10.792901	10.792965	10.793030	0 16	4. 52		10.804672	10.804738	10.804804	0 1	4. 53	
10.793094	10.793159	10.793223	45	1 = 13		10.804871	10.804937	10.805003	45	1 = 13	
10.793288	10.793352	10.793417	30	2. 26		10.805070	10.805136	10.805202	30	2. 27	
10.793481	10.793546	10.793611	15	3. 39		10.805269	10.805335	10.805402	15	3. 40	
10.793675	10.793740	10.793804	0 15	4. 52		10.805468	10.805535	10.805601	0 0	4. 53	
15'	10'	5'				15'	10'	5'			
Co-secant of 9 degrees, or Secant of 99 degrees.				Seconds Minutes	Proport. parts.	Co-secant of 9 degrees, or Secant of 99 degrees.				Seconds Minutes	Proport. parts.

LOGARITHMIC SECANTS.

		Secant of 81 degrees, or Co-secant of 171 degrees.							Secant of 81 degrees, or Co-secant of 171 degrees.								
Minutes	Seconds	0"	5"	10"	Seconds	Minutes	Proport. parts.	Seconds	Minutes	Seconds	0"	5"	10"	Seconds			
0	0	10.805668	10.805734	10.805800	45	1	13		15	0	10.817804	10.817872	10.817941	45			
15	0	10.805867	10.805933	10.806000	30	2	27		15	15	10.818009	10.818078	10.818146	30			
30	0	10.806067	10.806133	10.806200	15	3	40		30	15	10.818215	10.818283	10.818352	15			
45	0	10.806266	10.806333	10.806399	0	4	53		45	0	10.818420	10.818489	10.818557	0			
1	0	10.806466	10.806532	10.806599	45	1	13		16	0	10.818626	10.818694	10.818763	45			
15	0	10.806666	10.806732	10.806799	30	2	27		15	15	10.818831	10.818900	10.818968	30			
30	0	10.806866	10.806932	10.806999	15	3	40		30	15	10.819037	10.819106	10.819174	15			
45	0	10.807066	10.807132	10.807199	0	4	53		45	0	10.819243	10.819311	10.819380	0			
2	0	10.807266	10.807332	10.807399	45	1	13		17	0	10.819449	10.819517	10.819586	45			
15	0	10.807466	10.807533	10.807599	30	2	27		15	15	10.819655	10.819723	10.819792	30			
30	0	10.807666	10.807733	10.807800	15	3	40		30	15	10.819861	10.819930	10.819998	15			
45	0	10.807867	10.807934	10.808000	0	4	53		45	0	10.820067	10.820136	10.820205	0			
3	0	10.808067	10.808134	10.808201	45	1	13		18	0	10.820273	10.820342	10.820411	45			
15	0	10.808268	10.808335	10.808402	30	2	27		15	15	10.820480	10.820549	10.820618	30			
30	0	10.808468	10.808535	10.808602	15	3	40		30	15	10.820686	10.820755	10.820824	15			
45	0	10.808669	10.808736	10.808803	0	4	54		45	0	10.820893	10.820962	10.821031	0			
4	0	10.808870	10.808937	10.809004	45	1	13		19	0	10.821100	10.821169	10.821238	45			
15	0	10.809071	10.809138	10.809205	30	2	27		15	15	10.821307	10.821376	10.821445	30			
30	0	10.809272	10.809339	10.809406	15	3	40		30	15	10.821514	10.821583	10.821652	15			
45	0	10.809473	10.809540	10.809607	0	4	54		45	0	10.821721	10.821790	10.821859	0			
5	0	10.809675	10.809742	10.809809	45	1	13		20	0	10.821928	10.821997	10.822066	45			
15	0	10.809876	10.809943	10.810010	30	2	27		15	15	10.822135	10.822204	10.822273	30			
30	0	10.810077	10.810144	10.810212	15	3	40		30	15	10.822342	10.822411	10.822481	15			
45	0	10.810279	10.810346	10.810413	0	4	54		45	0	10.822550	10.822619	10.822688	0			
6	0	10.810480	10.810548	10.810615	45	1	13		21	0	10.822757	10.822827	10.822896	45			
15	0	10.810682	10.810749	10.810817	30	2	27		15	15	10.822965	10.823034	10.823104	30			
30	0	10.810884	10.810951	10.811019	15	3	40		30	15	10.823173	10.823242	10.823311	15			
45	0	10.811086	10.811153	10.811220	0	4	54		45	0	10.823381	10.823450	10.823519	0			
7	0	10.811288	10.811355	10.811423	45	1	13		22	0	10.823589	10.823658	10.823727	45			
15	0	10.811490	10.811557	10.811625	30	2	27		15	15	10.823797	10.823866	10.823936	30			
30	0	10.811692	10.811760	10.811827	15	3	40		30	15	10.824005	10.824074	10.824144	15			
45	0	10.811895	10.811962	10.812030	0	4	54		45	0	10.824213	10.824283	10.824352	0			
8	0	10.812097	10.812165	10.812232	45	1	14		23	0	10.824422	10.824491	10.824561	45			
15	0	10.812300	10.812367	10.812435	30	2	27		15	15	10.824630	10.824700	10.824769	30			
30	0	10.812502	10.812570	10.812637	15	3	41		30	15	10.824839	10.824908	10.824978	15			
45	0	10.812705	10.812772	10.812840	0	4	54		45	0	10.825047	10.825117	10.825186	0			
9	0	10.812908	10.812975	10.813043	45	1	14		24	0	10.825256	10.825326	10.825395	45			
15	0	10.813111	10.813178	10.813246	30	2	27		15	15	10.825465	10.825535	10.825604	30			
30	0	10.813313	10.813381	10.813449	15	3	41		30	15	10.825674	10.825744	10.825813	15			
45	0	10.813517	10.813584	10.813652	0	4	54		45	0	10.825883	10.825953	10.826023	0			
10	0	10.813720	10.813788	10.813855	45	1	14		25	0	10.826092	10.826162	10.826232	45			
15	0	10.813923	10.813991	10.814059	30	2	27		15	15	10.826302	10.826371	10.826441	30			
30	0	10.814126	10.814194	10.814262	15	3	41		30	15	10.826511	10.826581	10.826651	15			
45	0	10.814330	10.814398	10.814466	0	4	54		45	0	10.826720	10.826790	10.826860	0			
11	0	10.814533	10.814601	10.814669	45	1	14		26	0	10.826930	10.827000	10.827070	45			
15	0	10.814737	10.814805	10.814873	30	2	27		15	15	10.827140	10.827210	10.827280	30			
30	0	10.814941	10.815009	10.815077	15	3	41		30	15	10.827350	10.827420	10.827489	15			
45	0	10.815145	10.815213	10.815281	0	4	54		45	0	10.827559	10.827629	10.827699	0			
12	0	10.815349	10.815417	10.815485	45	1	14		27	0	10.827769	10.827840	10.827910	45			
15	0	10.815553	10.815621	10.815689	30	2	27		15	15	10.827980	10.828050	10.828120	30			
30	0	10.815757	10.815825	10.815893	15	3	41		30	15	10.828190	10.828260	10.828330	15			
45	0	10.815961	10.816029	10.816097	0	4	54		45	0	10.828400	10.828470	10.828540	0			
13	0	10.816166	10.816234	10.816302	45	1	14		28	0	10.828611	10.828681	10.828751	45			
15	0	10.816370	10.816438	10.816506	30	2	27		15	15	10.828821	10.828891	10.828962	30			
30	0	10.816575	10.816643	10.816711	15	3	41		30	15	10.829032	10.829102	10.829172	15			
45	0	10.816779	10.816847	10.816916	0	4	55		45	0	10.829243	10.829313	10.829383	0			
14	0	10.816984	10.817052	10.817121	45	1	14		29	0	10.829453	10.829524	10.829594	45			
15	0	10.817189	10.817257	10.817325	30	2	27		15	15	10.829664	10.829735	10.829805	30			
30	0	10.817394	10.817462	10.817530	15	3	41		30	15	10.829875	10.829946	10.830016	15			
45	0	10.817599	10.817667	10.817736	0	4	55		45	0	10.830087	10.830157	10.830227	0			
15"		Co-secant of 8 degrees, or Secant of 98 degrees.			Seconds		Proport. parts.	Seconds	15"		Co-secant of 8 degrees, or Secant of 98 degrees.			Seconds			
10"					Minutes				10"					Minutes			
5"									5"								

LOGARITHMIC SECANTS.

Secant of 81 degrees, or Co-secant of 171 degrees.			Seconds	Minutes	Proport. parts.	Secant of 81 degrees, or Co-secant of 171 degrees.			Seconds	Minutes	Proport. parts.			
0"	5"	10"				0"	5"	10"						
30298	10.830368	10.830439	45	1"	14	45	0	10.843170	10.843243	10.843316	45	1"	15	
30509	10.830580	10.830650	30	2.	28	15	0	10.843388	10.843461	10.843534	30	2.	29	
30721	10.830791	10.830862	15	3.	42	30	0	10.843606	10.843679	10.843752	15	3.	44	
30932	10.831003	10.831073	0	29	4.	45	0	10.843824	10.843897	10.843970	0	14	4.	58
31144	10.831215	10.831285	45	1 =	14	46	0	10.844043	10.844115	10.844188	45	1 =	15	
31356	10.831426	10.831497	30	2.	28	15	0	10.844261	10.844334	10.844407	30	2.	29	
31568	10.831638	10.831709	15	3.	42	30	0	10.844479	10.844552	10.844625	15	3.	44	
31780	10.831850	10.831921	0	28	4.	45	0	10.844698	10.844771	10.844844	0	13	4.	58
31992	10.832063	10.832133	45	1 =	14	47	0	10.844917	10.844989	10.845062	45	1 =	15	
32204	10.832275	10.832346	30	2.	28	15	0	10.845135	10.845208	10.845281	30	2.	29	
32416	10.832487	10.832558	15	3.	42	30	0	10.845354	10.845427	10.845500	15	3.	44	
32629	10.832700	10.832771	0	27	4.	45	0	10.845573	10.845646	10.845719	0	12	4.	58
32841	10.832912	10.832983	45	1 =	14	48	0	10.845792	10.845865	10.845938	45	1 =	15	
33054	10.833125	10.833196	30	2.	28	15	0	10.846012	10.846085	10.846158	30	2.	29	
33267	10.833338	10.833409	15	3.	43	30	0	10.846231	10.846304	10.846377	15	3.	44	
33480	10.833551	10.833622	0	26	4.	45	0	10.846450	10.846524	10.846597	0	11	4.	58
33693	10.833764	10.833835	45	1 =	14	49	0	10.846670	10.846743	10.846816	45	1 =	15	
33906	10.833977	10.834048	30	2.	28	15	0	10.846890	10.846963	10.847036	30	2.	29	
34119	10.834190	10.834261	15	3.	43	30	0	10.847109	10.847183	10.847256	15	3.	44	
34332	10.834403	10.834474	0	25	4.	45	0	10.847329	10.847403	10.847476	0	10	4.	59
34546	10.834617	10.834688	45	1 =	14	50	0	10.847549	10.847623	10.847696	45	1 =	15	
34759	10.834830	10.834901	30	2.	28	15	0	10.847769	10.847843	10.847916	30	2.	29	
34973	10.835044	10.835115	15	3.	43	30	0	10.847990	10.848063	10.848137	15	3.	44	
35186	10.835258	10.835329	0	24	4.	45	0	10.848210	10.848284	10.848357	0	9	4.	59
35400	10.835471	10.835543	45	1 =	14	51	0	10.848431	10.848504	10.848578	45	1 =	15	
35614	10.835685	10.835757	30	2.	29	15	0	10.848651	10.848725	10.848798	30	2.	29	
35828	10.835900	10.835971	15	3.	43	30	0	10.848872	10.848945	10.849019	15	3.	44	
36042	10.836114	10.836185	0	23	4.	45	0	10.849093	10.849166	10.849240	0	8	4.	59
36257	10.836328	10.836399	45	1 =	14	52	0	10.849314	10.849387	10.849461	45	1 =	15	
36471	10.836542	10.836614	30	2.	29	15	0	10.849535	10.849608	10.849682	30	2.	29	
36685	10.836757	10.836828	15	3.	43	30	0	10.849756	10.849830	10.849903	15	3.	44	
36900	10.836972	10.837043	0	22	4.	45	0	10.849977	10.850051	10.850125	0	7	4.	59
37115	10.837186	10.837258	45	1 =	14	53	0	10.850198	10.850272	10.850346	45	1 =	15	
37329	10.837401	10.837473	30	2.	29	15	0	10.850420	10.850494	10.850568	30	2.	30	
37544	10.837616	10.837688	15	3.	43	30	0	10.850642	10.850715	10.850789	15	3.	44	
37759	10.837831	10.837903	0	21	4.	45	0	10.850863	10.850937	10.851011	0	6	4.	59
37975	10.838046	10.838118	45	1 =	14	54	0	10.851085	10.851159	10.851233	45	1 =	15	
38190	10.838262	10.838333	30	2.	29	15	0	10.851307	10.851381	10.851455	30	2.	30	
38405	10.838477	10.838549	15	3.	43	30	0	10.851529	10.851603	10.851677	15	3.	44	
38621	10.838692	10.838764	0	20	4.	45	0	10.851751	10.851826	10.851900	0	5	4.	59
38836	10.838908	10.838980	45	1 =	14	55	0	10.851974	10.852048	10.852122	45	1 =	15	
39052	10.839124	10.839196	30	2.	29	15	0	10.852196	10.852270	10.852345	30	2.	30	
39268	10.839339	10.839411	15	3.	43	30	0	10.852419	10.852493	10.852567	15	3.	45	
39483	10.839555	10.839627	0	19	4.	45	0	10.852641	10.852716	10.852790	0	4	4.	59
39699	10.839771	10.839843	45	1 =	14	56	0	10.852864	10.852938	10.853013	45	1 =	15	
39916	10.839988	10.840060	30	2.	29	15	0	10.853087	10.853161	10.853236	30	2.	30	
40132	10.840204	10.840276	15	3.	43	30	0	10.853310	10.853384	10.853459	15	3.	45	
40348	10.840420	10.840492	0	18	4.	45	0	10.853533	10.853608	10.853682	0	3	4.	59
40565	10.840637	10.840709	45	1 =	14	57	0	10.853756	10.853831	10.853905	45	1 =	15	
40781	10.840853	10.840925	30	2.	29	15	0	10.853980	10.854054	10.854129	30	2.	30	
40998	10.841070	10.841142	15	3.	43	30	0	10.854203	10.854278	10.854352	15	3.	45	
41214	10.841287	10.841359	0	17	4.	45	0	10.854427	10.854501	10.854576	0	2	4.	60
41431	10.841504	10.841576	45	1 =	14	58	0	10.854651	10.854725	10.854800	45	1 =	15	
41648	10.841721	10.841793	30	2.	29	15	0	10.854874	10.854949	10.855024	30	2.	30	
41865	10.841938	10.842010	15	3.	43	30	0	10.855098	10.855173	10.855248	15	3.	45	
42083	10.842155	10.842228	0	16	4.	45	0	10.855323	10.855397	10.855472	0	1	4.	60
42300	10.842372	10.842445	45	1 =	15	59	0	10.855547	10.855621	10.855696	45	1 =	15	
42517	10.842590	10.842662	30	2.	29	15	0	10.855771	10.855846	10.855921	30	2.	30	
42735	10.842807	10.842880	15	3.	44	30	0	10.855995	10.856070	10.856145	15	3.	45	
42953	10.843025	10.843098	0	15	4.	45	0	10.856220	10.856295	10.856370	0	0	4.	60
5"	10"	5"	Co-secant of 8 degrees, or Secant of 98 degrees.			15"	10"	5"	Co-secant of 8 degrees, or Secant of 98 degrees.					
Seconds	Minutes	Proport. parts.	Seconds	Minutes	Proport. parts.	Seconds	Minutes	Proport. parts.	Seconds	Minutes	Proport. parts.			

LOGARITHMIC SECANTS.

Minutes Seconds		Secant of 82 degrees, or Co-secant of 172 degrees.			Seconds Minutes		Proport. parts.	Minutes Seconds		Secant of 82 degrees, or Co-secant of 172 degrees.		
		0"	5"	10"						0"	5"	10"
0	0	10.856445	10.856520	10.856594	45		1" = 15	15	0	10.870146	10.870223	10.870301
	15	10.856669	10.856744	10.856819	30		2. 30		15	10.870378	10.870456	10.870533
	30	10.856894	10.856969	10.857044	15		3. 45		30	10.870610	10.870688	10.870765
	45	10.857119	10.857194	10.857269	0	59	4. 60		45	10.870843	10.870920	10.870998
1	0	10.857344	10.857420	10.857495	45		1" = 15	16	0	10.871075	10.871153	10.871230
	15	10.857570	10.857645	10.857720	30		2. 30		15	10.871308	10.871385	10.871463
	30	10.857795	10.857870	10.857945	15		3. 45		30	10.871541	10.871618	10.871696
	45	10.858021	10.858096	10.858171	0	58	4. 60		45	10.871774	10.871851	10.871929
2	0	10.858246	10.858321	10.858397	45		1" = 15	17	0	10.872007	10.872084	10.872162
	15	10.858472	10.858547	10.858623	30		2. 30		15	10.872240	10.872317	10.872395
	30	10.858698	10.858773	10.858848	15		3. 45		30	10.872473	10.872551	10.872629
	45	10.858924	10.858999	10.859075	0	57	4. 60		45	10.872706	10.872784	10.872862
3	0	10.859150	10.859225	10.859301	45		1" = 15	18	0	10.872940	10.873018	10.873096
	15	10.859376	10.859452	10.859527	30		2. 30		15	10.873174	10.873251	10.873329
	30	10.859602	10.859678	10.859753	15		3. 45		30	10.873407	10.873485	10.873563
	45	10.859829	10.859904	10.859980	0	56	4. 60		45	10.873641	10.873719	10.873797
4	0	10.860055	10.860131	10.860207	45		1" = 15	19	0	10.873875	10.873953	10.874031
	15	10.860282	10.860358	10.860433	30		2. 30		15	10.874109	10.874188	10.874266
	30	10.860509	10.860585	10.860660	15		3. 45		30	10.874344	10.874422	10.874500
	45	10.860736	10.860812	10.860887	0	55	4. 60		45	10.874578	10.874656	10.874735
5	0	10.860963	10.861039	10.861114	45		1" = 15	20	0	10.874813	10.874891	10.874969
	15	10.861190	10.861266	10.861342	30		2. 30		15	10.875047	10.875126	10.875204
	30	10.861417	10.861493	10.861569	15		3. 45		30	10.875282	10.875361	10.875439
	45	10.861645	10.861721	10.861797	0	54	4. 61		45	10.875517	10.875596	10.875674
6	0	10.861872	10.861948	10.862024	45		1" = 15	21	0	10.875752	10.875831	10.875909
	15	10.862100	10.862176	10.862252	30		2. 30		15	10.875987	10.876066	10.876144
	30	10.862328	10.862404	10.862480	15		3. 46		30	10.876223	10.876301	10.876380
	45	10.862556	10.862632	10.862708	0	53	4. 61		45	10.876458	10.876537	10.876615
7	0	10.862784	10.862860	10.862936	45		1" = 15	22	0	10.876694	10.876772	10.876851
	15	10.863012	10.863088	10.863164	30		2. 30		15	10.876930	10.877008	10.877087
	30	10.863240	10.863316	10.863393	15		3. 46		30	10.877165	10.877244	10.877323
	45	10.863469	10.863545	10.863621	0	52	4. 61		45	10.877401	10.877480	10.877559
8	0	10.863697	10.863773	10.863850	45		1" = 15	23	0	10.877638	10.877716	10.877795
	15	10.863926	10.864002	10.864078	30		2. 31		15	10.877874	10.877953	10.878031
	30	10.864155	10.864231	10.864307	15		3. 46		30	10.878110	10.878189	10.878268
	45	10.864383	10.864460	10.864536	0	51	4. 61		45	10.878347	10.878426	10.878504
9	0	10.864612	10.864689	10.864765	45		1" = 15	24	0	10.878583	10.878662	10.878741
	15	10.864842	10.864918	10.864994	30		2. 31		15	10.878820	10.878899	10.878978
	30	10.865071	10.865147	10.865224	15		3. 46		30	10.879057	10.879136	10.879215
	45	10.865300	10.865377	10.865453	0	50	4. 61		45	10.879294	10.879373	10.879452
10	0	10.865530	10.865606	10.865683	45		1" = 15	25	0	10.879531	10.879610	10.879689
	15	10.865759	10.865836	10.865913	30		2. 31		15	10.879768	10.879848	10.879927
	30	10.865989	10.866066	10.866142	15		3. 46		30	10.880006	10.880085	10.880164
	45	10.866219	10.866296	10.866372	0	49	4. 61		45	10.880243	10.880323	10.880402
11	0	10.866449	10.866526	10.866602	45		1" = 15	26	0	10.880481	10.880561	10.880640
	15	10.866679	10.866756	10.866833	30		2. 31		15	10.880719	10.880798	10.880878
	30	10.866909	10.866986	10.867063	15		3. 46		30	10.880957	10.881036	10.881116
	45	10.867140	10.867217	10.867293	0	48	4. 61		45	10.881195	10.881274	10.881354
12	0	10.867370	10.867447	10.867524	45		1" = 15	27	0	10.881433	10.881513	10.881592
	15	10.867601	10.867678	10.867755	30		2. 31		15	10.881672	10.881751	10.881831
	30	10.867832	10.867909	10.867986	15		3. 46		30	10.881910	10.881990	10.882069
	45	10.868063	10.868139	10.868216	0	47	4. 62		45	10.882149	10.882228	10.882308
13	0	10.868294	10.868371	10.868448	45		1" = 15	28	0	10.882387	10.882467	10.882547
	15	10.868525	10.868602	10.868679	30		2. 31		15	10.882626	10.882706	10.882786
	30	10.868756	10.868833	10.868910	15		3. 46		30	10.882865	10.882945	10.883025
	45	10.868987	10.869064	10.869142	0	46	4. 62		45	10.883104	10.883184	10.883264
14	0	10.869219	10.869296	10.869373	45		1" = 15	29	0	10.883344	10.883424	10.883503
	15	10.869450	10.869528	10.869605	30		2. 31		15	10.883583	10.883663	10.883743
	30	10.869682	10.869759	10.869837	15		3. 46		30	10.883823	10.883903	10.883983
	45	10.869914	10.869991	10.870069	0	45	4. 62		45	10.884062	10.884142	10.884222
Minutes Seconds		15"	10"	5"	Seconds Minutes		Proport. parts.	Minutes Seconds		15"	10"	5"
		Co-secant of 7 degrees, or Secant of 97 degrees.								Co-secant of 7 degrees, or Secant of 97 degrees.		

LOGARITHMIC SECANTS.

Tangent of 82 degrees, or secant of 172 degrees.			Seconds Minutes	Proport. parts.	Minutes Seconds	Secant of 82 degrees, or Co-secant of 172 degrees.			Seconds Minutes	Proport. parts.	
5'	10'	0'				5'	10'				
102	10.884382	10.884462	45	1" = 16	45	0	10.898944	10.899027	10.899110	45	1" = 17
542	10.884622	10.884702	30	2. 32	15	15	10.899192	10.899275	10.899358	30	2. 33
782	10.884862	10.884942	15	3. 48	30	30	10.899441	10.899524	10.899607	15	3. 50
223	10.885103	10.885183	0 20	4. 64	45	45	10.899690	10.899772	10.899855	0 14	4. 66
163	10.885343	10.885423	45	1" = 16	46	0	10.899938	10.900021	10.900104	45	1" = 17
103	10.885584	10.885664	30	2. 32	15	15	10.900187	10.900270	10.900353	30	2. 33
744	10.885824	10.885905	15	3. 48	30	30	10.900436	10.900519	10.900602	15	3. 50
185	10.886065	10.886145	0 28	4. 64	45	45	10.900686	10.900769	10.900852	0 13	4. 66
126	10.886306	10.886386	45	1" = 16	47	0	10.900935	10.901018	10.901101	45	1" = 17
167	10.886547	10.886628	30	2. 32	15	15	10.901184	10.901268	10.901351	30	2. 33
108	10.886788	10.886869	15	3. 48	30	30	10.901434	10.901517	10.901600	15	3. 50
149	10.887030	10.887110	0 27	4. 64	45	45	10.901684	10.901767	10.901850	0 12	4. 67
191	10.887271	10.887352	45	1" = 16	48	0	10.901934	10.902017	10.902100	45	1" = 17
132	10.887513	10.887594	30	2. 32	15	15	10.902184	10.902267	10.902351	30	2. 33
774	10.887755	10.887836	15	3. 48	30	30	10.902434	10.902517	10.902601	15	3. 50
116	10.887997	10.888077	0 26	4. 64	45	45	10.902684	10.902768	10.902851	0 11	4. 67
158	10.888239	10.888319	45	1" = 16	49	0	10.902935	10.903018	10.903102	45	1" = 17
100	10.888481	10.888562	30	2. 32	15	15	10.903186	10.903269	10.903353	30	2. 33
742	10.888723	10.888804	15	3. 48	30	30	10.903436	10.903519	10.903604	15	3. 50
385	10.888966	10.889046	0 25	4. 65	45	45	10.903687	10.903771	10.903855	0 10	4. 67
127	10.889208	10.889289	45	1" = 16	50	0	10.903938	10.904022	10.904106	45	1" = 17
170	10.889451	10.889532	30	2. 32	15	15	10.904190	10.904273	10.904357	30	2. 34
113	10.889694	10.889775	15	3. 49	30	30	10.904441	10.904525	10.904609	15	3. 50
156	10.889937	10.890018	0 24	4. 65	45	45	10.904693	10.904777	10.904860	0 9	4. 67
209	10.890180	10.890261	45	1" = 16	51	0	10.904944	10.905028	10.905112	45	1" = 17
142	10.890423	10.890504	30	2. 32	15	15	10.905196	10.905280	10.905364	30	2. 34
86	10.890667	10.890748	15	3. 49	30	30	10.905448	10.905532	10.905616	15	3. 50
129	10.890910	10.890992	0 23	4. 65	45	45	10.905700	10.905784	10.905868	0 8	4. 67
173	10.891154	10.891235	45	1" = 16	52	0	10.905953	10.906037	10.906121	45	1" = 17
117	10.891398	10.891479	30	2. 33	15	15	10.906205	10.906289	10.906373	30	2. 34
160	10.891642	10.891723	15	3. 49	30	30	10.906458	10.906542	10.906626	15	3. 51
105	10.891886	10.891967	0 22	4. 65	45	45	10.906710	10.906795	10.906879	0 7	4. 67
149	10.892130	10.892212	45	1" = 16	53	0	10.906963	10.907048	10.907132	45	1" = 17
193	10.892375	10.892456	30	2. 33	15	15	10.907216	10.907301	10.907385	30	2. 34
138	10.892619	10.892701	15	3. 49	30	30	10.907469	10.907554	10.907638	15	3. 51
182	10.892864	10.892945	0 21	4. 65	45	45	10.907723	10.907807	10.907892	0 6	4. 68
227	10.893109	10.893190	45	1" = 16	54	0	10.907976	10.908061	10.908145	45	1" = 17
172	10.893354	10.893435	30	2. 33	15	15	10.908230	10.908315	10.908399	30	2. 34
117	10.893599	10.893680	15	3. 49	30	30	10.908484	10.908568	10.908653	15	3. 51
162	10.893844	10.893926	0 20	4. 65	45	45	10.908738	10.908822	10.908907	0 5	4. 68
208	10.894089	10.894171	45	1" = 16	55	0	10.908992	10.909076	10.909161	45	1" = 17
153	10.894335	10.894417	30	2. 33	15	15	10.909246	10.909331	10.909416	30	2. 34
199	10.894581	10.894662	15	3. 49	30	30	10.909500	10.909585	10.909670	15	3. 51
144	10.894826	10.894908	0 19	4. 66	45	45	10.909755	10.909840	10.909925	0 4	4. 68
190	10.895072	10.895154	45	1" = 16	56	0	10.910010	10.910095	10.910179	45	1" = 17
136	10.895318	10.895400	30	2. 33	15	15	10.910264	10.910349	10.910434	30	2. 34
183	10.895565	10.895647	15	3. 49	30	30	10.910519	10.910604	10.910690	15	3. 51
229	10.895811	10.895893	0 18	4. 66	45	45	10.910775	10.910860	10.910945	0 3	4. 68
175	10.896058	10.896140	45	1" = 16	57	0	10.911030	10.911115	10.911200	45	1" = 17
122	10.896304	10.896386	30	2. 33	15	15	10.911285	10.911371	10.911456	30	2. 34
169	10.896551	10.896633	15	3. 49	30	30	10.911541	10.911626	10.911711	15	3. 51
116	10.896798	10.896880	0 17	4. 66	45	45	10.911797	10.911882	10.911967	0 2	4. 68
163	10.897045	10.897127	45	1" = 16	58	0	10.912053	10.912138	10.912223	45	1" = 17
110	10.897292	10.897375	30	2. 33	15	15	10.912309	10.912394	10.912480	30	2. 34
157	10.897540	10.897622	15	3. 49	30	30	10.912565	10.912650	10.912736	15	3. 51
105	10.897787	10.897870	0 16	4. 66	45	45	10.912821	10.912907	10.912992	0 1	4. 68
152	10.898035	10.898117	45	1" = 17	59	0	10.913078	10.913163	10.913249	45	1" = 17
100	10.898283	10.898365	30	2. 33	15	15	10.913335	10.913420	10.913506	30	2. 34
148	10.898531	10.898613	15	3. 50	30	30	10.913591	10.913677	10.913763	15	3. 51
96	10.898779	10.898861	0 15	4. 66	45	45	10.913848	10.913934	10.914020	0 0	4. 68
10'	5'		Seconds Minutes	Proport. parts.	Minutes Seconds	15'	10'	5'	Seconds Minutes	Proport. parts.	
Tangent of 7 degrees, or secant of 97 degrees.						Co-secant of 7 degrees, or Secant of 97 degrees.					

LOGARITHMIC SECANTS.

Minutes Seconds	Secant of 83 degrees, or Co-secant of 173 degrees.			Seconds Minutes	Proport. parts.	Minutes Seconds	Secant of 83 degrees, or Co-secant of 173 degrees.			Seconds Minutes	Proport. parts.
	0"	5"	10"				0"	5"	10"		
0	10.914105	10.914191	10.914277	45	1" = 17	15	10.929824	10.929913	10.930002	45	
15	10.914363	10.914449	10.914534	30	2. 34	15	10.930091	10.930180	10.930269	30	
30	10.914620	10.914706	10.914792	15	3. 52	30	10.930358	10.930447	10.930536	15	
45	10.914878	10.914964	10.915050	0	4. 69	45	10.930625	10.930714	10.930803	0	
1	10.915136	10.915222	10.915308	45	1" = 17	16	10.930893	10.930982	10.931071	45	
15	10.915394	10.915480	10.915566	30	2. 34	15	10.931160	10.931249	10.931339	30	
30	10.915652	10.915738	10.915824	15	3. 52	30	10.931428	10.931517	10.931607	15	
45	10.915910	10.915996	10.916082	0	4. 69	45	10.931696	10.931785	10.931875	0	
2	10.916168	10.916254	10.916341	45	1" = 17	17	10.931964	10.932053	10.932143	45	
15	10.916427	10.916513	10.916599	30	2. 35	15	10.932232	10.932322	10.932411	30	
30	10.916685	10.916772	10.916858	15	3. 52	30	10.932501	10.932590	10.932680	15	
45	10.916944	10.917031	10.917117	0	4. 69	45	10.932769	10.932859	10.932948	0	
3	10.917203	10.917290	10.917376	45	1" = 17	18	10.933038	10.933128	10.933217	45	
15	10.917462	10.917549	10.917635	30	2. 35	15	10.933307	10.933397	10.933486	30	
30	10.917722	10.917808	10.917895	15	3. 52	30	10.933576	10.933666	10.933756	15	
45	10.917981	10.918068	10.918154	0	4. 69	45	10.933845	10.933935	10.934025	0	
4	10.918241	10.918328	10.918414	45	1" = 17	19	10.934115	10.934205	10.934294	45	
15	10.918501	10.918587	10.918674	30	2. 35	15	10.934384	10.934474	10.934564	30	
30	10.918761	10.918847	10.918934	15	3. 52	30	10.934654	10.934744	10.934834	15	
45	10.919021	10.919108	10.919194	0	4. 69	45	10.934924	10.935014	10.935104	0	
5	10.919281	10.919368	10.919455	45	1" = 17	20	10.935194	10.935284	10.935374	45	
15	10.919542	10.919628	10.919715	30	2. 35	15	10.935465	10.935555	10.935645	30	
30	10.919802	10.919889	10.919976	15	3. 52	30	10.935735	10.935825	10.935915	15	
45	10.920063	10.920150	10.920237	0	4. 69	45	10.936006	10.936096	10.936186	0	
6	10.920324	10.920411	10.920498	45	1" = 17	21	10.936276	10.936367	10.936457	45	
15	10.920585	10.920672	10.920759	30	2. 35	15	10.936547	10.936638	10.936728	30	
30	10.920846	10.920933	10.921020	15	3. 52	30	10.936819	10.936909	10.936999	15	
45	10.921107	10.921195	10.921282	0	4. 70	45	10.937090	10.937180	10.937271	0	
7	10.921369	10.921456	10.921543	45	1" = 17	22	10.937361	10.937452	10.937542	45	
15	10.921631	10.921718	10.921805	30	2. 35	15	10.937633	10.937724	10.937814	30	
30	10.921893	10.921980	10.922067	15	3. 52	30	10.937905	10.937996	10.938086	15	
45	10.922155	10.922242	10.922329	0	4. 70	45	10.938177	10.938268	10.938358	0	
8	10.922417	10.922504	10.922592	45	1" = 18	23	10.938449	10.938540	10.938631	45	
15	10.922679	10.922767	10.922854	30	2. 35	15	10.938721	10.938812	10.938903	30	
30	10.922942	10.923029	10.923117	15	3. 53	30	10.938994	10.939085	10.939176	15	
45	10.923204	10.923292	10.923379	0	4. 70	45	10.939267	10.939358	10.939449	0	
9	10.923467	10.923555	10.923642	45	1" = 18	24	10.939540	10.939631	10.939722	45	
15	10.923730	10.923818	10.923906	30	2. 35	15	10.939813	10.939904	10.939995	30	
30	10.923993	10.924081	10.924169	15	3. 53	30	10.940086	10.940177	10.940268	15	
45	10.924257	10.924344	10.924432	0	4. 70	45	10.940359	10.940450	10.940542	0	
10	10.924520	10.924608	10.924696	45	1" = 18	25	10.940633	10.940724	10.940815	45	
15	10.924784	10.924872	10.924960	30	2. 35	15	10.940907	10.940998	10.941089	30	
30	10.925047	10.925135	10.925223	15	3. 53	30	10.941180	10.941272	10.941363	15	
45	10.925311	10.925399	10.925487	0	4. 70	45	10.941455	10.941546	10.941637	0	
11	10.925576	10.925664	10.925752	45	1" = 18	26	10.941729	10.941820	10.941912	45	
15	10.925840	10.925928	10.926016	30	2. 35	15	10.942003	10.942095	10.942186	30	
30	10.926104	10.926192	10.926281	15	3. 53	30	10.942278	10.942369	10.942461	15	
45	10.926369	10.926457	10.926545	0	4. 71	45	10.942553	10.942644	10.942736	0	
12	10.926634	10.926722	10.926810	45	1" = 18	27	10.942828	10.942919	10.943011	45	
15	10.926899	10.926987	10.927075	30	2. 35	15	10.943103	10.943195	10.943286	30	
30	10.927164	10.927252	10.927341	15	3. 53	30	10.943378	10.943470	10.943562	15	
45	10.927429	10.927517	10.927606	0	4. 71	45	10.943654	10.943746	10.943837	0	
13	10.927694	10.927783	10.927871	45	1" = 18	28	10.943929	10.944021	10.944113	45	
15	10.927960	10.928049	10.928137	30	2. 35	15	10.944205	10.944297	10.944389	30	
30	10.928226	10.928314	10.928403	15	3. 53	30	10.944481	10.944573	10.944665	15	
45	10.928492	10.928580	10.928669	0	4. 71	45	10.944757	10.944850	10.944942	0	
14	10.928758	10.928847	10.928935	45	1" = 18	29	10.945034	10.945126	10.945218	45	
15	10.929024	10.929113	10.929202	30	2. 36	15	10.945310	10.945403	10.945495	30	
30	10.929291	10.929379	10.929468	15	3. 53	30	10.945587	10.945679	10.945772	15	
45	10.929557	10.929646	10.929735	0	4. 71	45	10.945864	10.945956	10.946049	0	
Minutes Seconds	Co-secant of 6 degrees, or Secant of 96 degrees.			Seconds Minutes	Proport. parts.	Minutes Seconds	Co-secant of 6 degrees, or Secant of 96 degrees.			Seconds Minutes	Proport. parts.
	15"	10"	5"				15"	10"	5"		

LOGARITHMIC SECANTS.

Secant of 83 degrees, or cosecant of 173 degrees.			Secant of 83 degrees, or Cosecant of 173 degrees.		
5'	10'	Seconds	0'	5'	10'
141 10.946234	10.946326	45	45 10.963104	10.963200	10.963296
118 10.946511	10.946603	30	15 10.963393	10.963489	10.963585
96 10.946788	10.946881	15	30 10.963681	10.963778	10.963874
74 10.947066	10.947159	0 29	45 10.963970	10.964067	10.964163
51 10.947344	10.947437	45	46 10.964259	10.964356	10.964452
29 10.947622	10.947715	30	15 10.964549	10.964645	10.964741
8 10.947900	10.947993	15	30 10.964838	10.964935	10.965031
86 10.948179	10.948272	0 28	45 10.965128	10.965224	10.965321
65 10.948457	10.948550	45	47 10.965417	10.965514	10.965611
43 10.948736	10.948829	30	15 10.965707	10.965804	10.965901
22 10.949015	10.949108	15	30 10.965998	10.966095	10.966191
1 10.949294	10.949387	0 27	45 10.966288	10.966385	10.966482
81 10.949574	10.949667	45	48 10.966579	10.966676	10.966773
60 10.949853	10.949946	30	15 10.966870	10.966967	10.967064
40 10.950133	10.950226	15	30 10.967161	10.967258	10.967355
19 10.950413	10.950506	0 26	45 10.967452	10.967549	10.967646
99 10.950693	10.950786	45	49 10.967743	10.967840	10.967938
80 10.950973	10.951067	30	15 10.968035	10.968132	10.968229
60 10.951254	10.951347	15	30 10.968327	10.968424	10.968521
41 10.951534	10.951628	0 25	45 10.968619	10.968716	10.968813
21 10.951815	10.951909	45	50 10.968911	10.969008	10.969106
2 10.952096	10.952190	30	15 10.969203	10.969301	10.969398
83 10.952377	10.952471	15	30 10.969496	10.969594	10.969691
65 10.952658	10.952752	0 24	45 10.969789	10.969886	10.969984
46 10.952940	10.953034	45	51 10.970082	10.970179	10.970277
28 10.953222	10.953316	30	15 10.970375	10.970473	10.970571
10 10.953504	10.953598	15	30 10.970668	10.970766	10.970864
92 10.953786	10.953880	0 23	45 10.970962	10.971060	10.971158
74 10.954068	10.954162	45	52 10.971256	10.971354	10.971452
56 10.954350	10.954445	30	15 10.971550	10.971648	10.971746
39 10.954633	10.954727	15	30 10.971844	10.971942	10.972040
22 10.954916	10.955010	0 22	45 10.972138	10.972237	10.972335
5 10.955199	10.955293	45	53 10.972433	10.972531	10.972630
88 10.955482	10.955577	30	15 10.972728	10.972826	10.972924
71 10.955766	10.955860	15	30 10.973023	10.973121	10.973220
55 10.956049	10.956144	0 21	45 10.973318	10.973417	10.973515
38 10.956333	10.956428	45	54 10.973613	10.973712	10.973811
22 10.956617	10.956712	30	15 10.973909	10.974008	10.974106
106 10.956901	10.956996	15	30 10.974205	10.974304	10.974402
91 10.957185	10.957280	0 20	45 10.974501	10.974600	10.974698
75 10.957470	10.957565	45	55 10.974797	10.974896	10.974995
60 10.957755	10.957850	30	15 10.975094	10.975193	10.975291
44 10.958039	10.958134	15	30 10.975390	10.975489	10.975588
30 10.958325	10.958420	0 19	45 10.975687	10.975786	10.975885
15 10.958610	10.958705	45	56 10.975984	10.976083	10.976182
100 10.958895	10.958991	30	15 10.976282	10.976381	10.976480
86 10.959181	10.959276	15	30 10.976579	10.976678	10.976777
72 10.959467	10.959562	0 18	45 10.976877	10.976976	10.977075
58 10.959753	10.959848	45	57 10.977175	10.977274	10.977373
44 10.960039	10.960135	30	15 10.977473	10.977572	10.977671
30 10.960326	10.960421	15	30 10.977771	10.977870	10.977970
17 10.960612	10.960708	0 17	45 10.978069	10.978169	10.978269
3 10.960899	10.960995	45	58 10.978368	10.978468	10.978567
90 10.961186	10.961282	30	15 10.978667	10.978767	10.978866
77 10.961473	10.961569	15	30 10.978966	10.979066	10.979166
65 10.961761	10.961856	0 16	45 10.979266	10.979365	10.979465
52 10.962048	10.962144	45	59 10.979565	10.979665	10.979765
40 10.962336	10.962432	30	15 10.979865	10.979965	10.980065
28 10.962624	10.962720	15	30 10.980165	10.980265	10.980365
16 10.962912	10.963008	0 15	45 10.980465	10.980565	10.980665
10'	5'	Seconds	15'	10'	5'
Secant of 6 degrees, or cosecant of 96 degrees.			Secant of 6 degrees, or Cosecant of 96 degrees.		

LOGARITHMIC SECANTS.

Minutes Seconds	Secant of 84 degrees, or Co-secant of 174 degrees.			Seconds	Minutes	Proport. parts.	Minutes Seconds	Secant of 84 degrees, or Co-secant of 174 degrees.			Seconds
	0'	5'	10'					0'	5'	10'	
0	10.980765	10.980866	10.980966	45	1" = 20		15	10.999184	10.999289	10.999393	45
15	10.981066	10.981166	10.981267	30	2. 40		15	10.999498	10.999602	10.999707	15
30	10.981367	10.981467	10.981567	15	3. 60		30	10.999812	10.999916	11.000021	30
45	10.981668	10.981768	10.981869	0 59	4. 80		45	11.000126	11.000231	11.000336	45
1	10.981969	10.982069	10.982170	45	1 = 20		16	11.000440	11.000545	11.000650	15
15	10.982270	10.982371	10.982472	30	2. 40		15	11.000755	11.000860	11.000965	15
30	10.982572	10.982673	10.982773	15	3. 60		30	11.001070	11.001175	11.001280	30
45	10.982874	10.982975	10.983075	0 58	4. 80		45	11.001385	11.001490	11.001595	45
2	10.983176	10.983277	10.983378	45	1 = 20		17	11.001701	11.001806	11.001911	15
15	10.983478	10.983579	10.983680	30	2. 40		15	11.002016	11.002121	11.002227	15
30	10.983781	10.983882	10.983983	15	3. 61		30	11.002332	11.002437	11.002543	30
45	10.984084	10.984185	10.984285	0 57	4. 81		45	11.002648	11.002753	11.002859	45
3	10.984386	10.984488	10.984589	45	1 = 20		18	11.002964	11.003070	11.003175	15
15	10.984690	10.984791	10.984892	30	2. 40		15	11.003281	11.003386	11.003492	15
30	10.984993	10.985094	10.985195	15	3. 61		30	11.003598	11.003703	11.003809	30
45	10.985297	10.985398	10.985499	0 56	4. 81		45	11.003915	11.004020	11.004126	45
4	10.985600	10.985702	10.985803	45	1 = 20		19	11.004232	11.004338	11.004443	15
15	10.985904	10.986006	10.986107	30	2. 41		15	11.004549	11.004655	11.004761	15
30	10.986209	10.986310	10.986411	15	3. 61		30	11.004867	11.004973	11.005079	30
45	10.986513	10.986614	10.986716	0 55	4. 81		45	11.005185	11.005291	11.005397	45
5	10.986818	10.986919	10.987021	45	1 = 20		20	11.005503	11.005609	11.005715	15
15	10.987122	10.987224	10.987326	30	2. 41		15	11.005822	11.005928	11.006034	15
30	10.987428	10.987529	10.987631	15	3. 61		30	11.006140	11.006246	11.006353	30
45	10.987733	10.987835	10.987937	0 54	4. 81		45	11.006459	11.006565	11.006672	45
6	10.988038	10.988140	10.988242	45	1 = 20		21	11.006778	11.006885	11.006991	15
15	10.988344	10.988446	10.988548	30	2. 41		15	11.007098	11.007204	11.007311	15
30	10.988650	10.988752	10.988854	15	3. 61		30	11.007417	11.007524	11.007630	30
45	10.988956	10.989058	10.989160	0 53	4. 82		45	11.007737	11.007844	11.007950	45
7	10.989263	10.989365	10.989467	45	1 = 20		22	11.008057	11.008164	11.008271	15
15	10.989569	10.989671	10.989774	30	2. 41		15	11.008377	11.008484	11.008591	15
30	10.989876	10.989978	10.990081	15	3. 61		30	11.008698	11.008805	11.008912	30
45	10.990183	10.990285	10.990388	0 52	4. 82		45	11.009019	11.009126	11.009233	45
8	10.990490	10.990593	10.990695	45	1 = 21		23	11.009340	11.009447	11.009554	15
15	10.990798	10.990900	10.991003	30	2. 41		15	11.009661	11.009768	11.009875	15
30	10.991105	10.991208	10.991311	15	3. 62		30	11.009983	11.010090	11.010197	30
45	10.991413	10.991516	10.991619	0 51	4. 82		45	11.010304	11.010412	11.010519	45
9	10.991722	10.991824	10.991927	45	1 = 21		24	11.010626	11.010734	11.010841	15
15	10.992030	10.992133	10.992236	30	2. 41		15	11.010948	11.011056	11.011164	15
30	10.992338	10.992441	10.992544	15	3. 62		30	11.011271	11.011378	11.011486	30
45	10.992647	10.992750	10.992853	0 50	4. 82		45	11.011594	11.011701	11.011809	45
10	10.992956	10.993059	10.993162	45	1 = 21		25	11.011917	11.012024	11.012132	15
15	10.993266	10.993369	10.993472	30	2. 41		15	11.012240	11.012348	11.012455	15
30	10.993575	10.993678	10.993781	15	3. 62		30	11.012563	11.012671	11.012779	30
45	10.993885	10.993988	10.994091	0 49	4. 83		45	11.012887	11.012995	11.013103	45
11	10.994195	10.994298	10.994401	45	1 = 21		26	11.013211	11.013319	11.013427	15
15	10.994505	10.994608	10.994712	30	2. 41		15	11.013535	11.013643	11.013751	15
30	10.994815	10.994919	10.995022	15	3. 62		30	11.013859	11.013968	11.014076	30
45	10.995126	10.995229	10.995333	0 48	4. 83		45	11.014184	11.014292	11.014401	45
12	10.995437	10.995540	10.995644	45	1 = 21		27	11.014509	11.014617	11.014726	15
15	10.995748	10.995851	10.995955	30	2. 42		15	11.014834	11.014943	11.015051	15
30	10.996059	10.996163	10.996267	15	3. 62		30	11.015160	11.015268	11.015377	30
45	10.996370	10.996474	10.996578	0 47	4. 83		45	11.015485	11.015594	11.015702	45
13	10.996682	10.996786	10.996890	45	1 = 21		28	11.015811	11.015920	11.016028	15
15	10.996994	10.997098	10.997202	30	2. 42		15	11.016137	11.016246	11.016355	15
30	10.997306	10.997410	10.997514	15	3. 62		30	11.016464	11.016572	11.016681	30
45	10.997619	10.997723	10.997827	0 46	4. 83		45	11.016790	11.016899	11.017008	45
14	10.997931	10.998035	10.998140	45	1 = 21		29	11.017117	11.017226	11.017335	15
15	10.998244	10.998348	10.998453	30	2. 42		15	11.017444	11.017553	11.017662	15
30	10.998557	10.998662	10.998766	15	3. 63		30	11.017772	11.017881	11.017990	30
45	10.998870	10.998975	10.999079	0 45	4. 84		45	11.018099	11.018208	11.018318	45
Minutes Seconds	15"	10"	5"	Seconds	Minutes	Proport. parts.	Minutes Seconds	15"	10"	5"	Seconds
							Co-secant of 5 degrees, or Secant of 95 degrees.				

LOGARITHMIC SECANTS.

Secant of 84 degrees, or Co-secant of 174 degrees.			Minutes			Seconds			Propor. parts.											
5'	10'		Seconds	Minutes	Propor. parts.	Minutes	Seconds		0'	5'	10'	Seconds	Minutes	Propor. parts.						
8427	11.018536	11.018646	45	1" = 22		45	0	11.038571	11.038686	11.038800	45	1" = 23								
8755	11.018865	11.018974	30	2. 44		15	0	11.038915	11.039030	11.039144	30	2. 46								
9084	11.019193	11.019303	15	3. 66		0	0	11.039259	11.039374	11.039489	15	3. 69								
9412	11.019522	11.019631	0	4. 88		45	0	11.039604	11.039718	11.039833	0	4. 92								
9741	11.019851	11.019960	45	1 = 22		46	0	11.039948	11.040063	11.040178	45	1 = 23								
10070	11.020180	11.020290	30	2. 44		15	0	11.040293	11.040408	11.040523	30	2. 46								
10400	11.020509	11.020619	15	3. 66		0	0	11.040638	11.040754	11.040869	15	3. 69								
10729	11.020839	11.020949	0	4. 88		45	0	11.040984	11.041099	11.041214	0	4. 92								
1059	11.021169	11.021279	45	1 = 22		47	0	11.041330	11.041445	11.041560	45	1 = 23								
1089	11.021499	11.021609	30	2. 44		15	0	11.041676	11.041791	11.041907	30	2. 46								
1120	11.021830	11.021940	15	3. 66		0	0	11.042022	11.042138	11.042253	15	3. 69								
1150	11.022161	11.022271	0	4. 88		45	0	11.042369	11.042484	11.042600	0	4. 92								
1181	11.022492	11.022602	45	1 = 22		48	0	11.042716	11.042831	11.042947	45	1 = 23								
1212	11.022823	11.022933	30	2. 44		15	0	11.043063	11.043179	11.043294	30	2. 46								
1244	11.023154	11.023265	15	3. 66		0	0	11.043410	11.043526	11.043642	15	3. 70								
1275	11.023486	11.023597	0	4. 88		45	0	11.043758	11.043874	11.043990	0	4. 93								
1307	11.023818	11.023929	45	1 = 22		49	0	11.044106	11.044222	11.044338	45	1 = 23								
1340	11.024150	11.024261	30	2. 44		15	0	11.044454	11.044570	11.044687	30	2. 46								
1372	11.024483	11.024594	15	3. 67		0	0	11.044803	11.044919	11.045035	15	3. 70								
1405	11.024816	11.024927	0	4. 89		45	0	11.045152	11.045268	11.045384	0	4. 93								
1438	11.025149	11.025260	45	1 = 22		50	0	11.045501	11.045617	11.045734	45	1 = 23								
1471	11.025482	11.025593	30	2. 44		15	0	11.045850	11.045967	11.046083	30	2. 47								
1504	11.025815	11.025927	15	3. 67		0	0	11.046200	11.046317	11.046433	15	3. 70								
1538	11.026149	11.026261	0	4. 89		45	0	11.046550	11.046667	11.046784	0	4. 93								
1572	11.026483	11.026595	45	1 = 22		51	0	11.046990	11.047017	11.047134	45	1 = 23								
1606	11.026818	11.026930	30	2. 45		15	0	11.047251	11.047368	11.047485	30	2. 47								
1641	11.027152	11.027264	15	3. 67		0	0	11.047602	11.047719	11.047836	15	3. 70								
1675	11.027487	11.027599	0	4. 89		45	0	11.047953	11.048070	11.048187	0	4. 94								
1710	11.027822	11.027934	45	1 = 22		52	0	11.048304	11.048421	11.048539	45	1 = 23								
1746	11.028158	11.028269	30	2. 45		15	0	11.048656	11.048773	11.048891	30	2. 47								
1781	11.028493	11.028605	15	3. 67		0	0	11.049008	11.049125	11.049243	15	3. 70								
1817	11.028829	11.028941	0	4. 90		45	0	11.049360	11.049478	11.049595	0	4. 94								
1853	11.029165	11.029277	45	1 = 22		53	0	11.049713	11.049830	11.049948	45	1 = 24								
1890	11.029502	11.029614	30	2. 45		15	0	11.050066	11.050183	11.050301	30	2. 47								
1926	11.029838	11.029951	15	3. 67		0	0	11.050419	11.050537	11.050654	15	3. 71								
1963	11.030175	11.030288	0	4. 90		45	0	11.050772	11.050890	11.051008	0	4. 94								
2000	11.030513	11.030625	45	1 = 23		54	0	11.051126	11.051244	11.051362	45	1 = 24								
2037	11.030850	11.030963	30	2. 45		15	0	11.051480	11.051598	11.051716	30	2. 47								
2075	11.031188	11.031300	15	3. 68		0	0	11.051834	11.051953	11.052071	15	3. 71								
2113	11.031526	11.031638	0	4. 90		45	0	11.052189	11.052307	11.052426	0	4. 94								
2151	11.031864	11.031977	45	1 = 23		55	0	11.052544	11.052662	11.052781	45	1 = 24								
2190	11.032203	11.032315	30	2. 45		15	0	11.052899	11.053018	11.053136	30	2. 47								
2228	11.032541	11.032654	15	3. 68		0	0	11.053255	11.053373	11.053492	15	3. 71								
2267	11.032880	11.032993	0	4. 90		45	0	11.053610	11.053729	11.053848	0	4. 95								
2307	11.033220	11.033333	45	1 = 23		56	0	11.053966	11.054085	11.054204	45	1 = 24								
2346	11.033559	11.033673	30	2. 45		15	0	11.054323	11.054442	11.054561	30	2. 48								
2386	11.033899	11.034013	15	3. 68		0	0	11.054679	11.054798	11.054917	15	3. 71								
2426	11.034239	11.034353	0	4. 91		45	0	11.055036	11.055155	11.055275	0	4. 95								
2466	11.034580	11.034693	45	1 = 23		57	0	11.055394	11.055513	11.055632	45	1 = 24								
2507	11.034920	11.035034	30	2. 45		15	0	11.055751	11.055870	11.055990	30	2. 48								
2548	11.035261	11.035375	15	3. 68		0	0	11.056109	11.056228	11.056348	15	3. 72								
2589	11.035603	11.035716	0	4. 91		45	0	11.056467	11.056587	11.056706	0	4. 95								
2630	11.035944	11.036058	45	1 = 23		58	0	11.056826	11.056945	11.057065	45	1 = 24								
2672	11.036286	11.036400	30	2. 46		15	0	11.057184	11.057304	11.057424	30	2. 48								
2714	11.036628	11.036742	15	3. 68		0	0	11.057543	11.057663	11.057783	15	3. 72								
2756	11.036970	11.037084	0	4. 91		45	0	11.057903	11.058023	11.058142	0	4. 96								
2799	11.037313	11.037427	45	1 = 23		59	0	11.058262	11.058382	11.058502	45	1 = 24								
2841	11.037656	11.037770	30	2. 46		15	0	11.058622	11.058742	11.058862	30	2. 48								
2884	11.037999	11.038113	15	3. 69		0	0	11.058983	11.059103	11.059223	15	3. 72								
2928	11.038342	11.038457	0	4. 91		45	0	11.059343	11.059463	11.059584	0	4. 96								
10'	5'		Seconds	Minutes	Propor. parts.	Minutes	Seconds		15'	10'	5'	Seconds	Minutes	Propor. parts.						
Secant of 5 degrees, or Co-secant of 95 degrees.			Minutes			Seconds			Co-secant of 5 degrees, or Secant of 95 degrees.			Seconds			Minutes			Propor. parts.		

LOGARITHMIC SECANTS.

Minutes Seconds		Secant of 85 degrees, or Co-secant of 175 degrees.			Seconds Minutes		Proport. parts.	Minutes Seconds		Secant of 85 degrees, or Co-secant of 175 degrees.			Seconds Minutes		Proport. parts.
		0"	5"	10"						0"	5"	10"			
0	0	11.059704	11.059824	11.059945	45		1" = 24	15	0	11.081927	11.082053	11.082180	45		
15	0	11.060065	11.060186	11.060306	30		2. 48	15	15	11.082307	11.082434	11.082561	30		
30	0	11.060427	11.060547	11.060668	15		3. 72	30	30	11.082687	11.082814	11.082941	15		
45	0	11.060788	11.060909	11.061030	0	59	4. 96	45	45	11.083068	11.083195	11.083322	0		
1	0	11.061150	11.061271	11.061392	45		1" = 24	16	0	11.083450	11.083577	11.083704	45		
15	0	11.061513	11.061634	11.061754	30		2. 48	15	15	11.083831	11.083958	11.084086	30		
30	0	11.061875	11.061996	11.062117	15		3. 73	30	30	11.084213	11.084341	11.084468	15		
45	0	11.062238	11.062359	11.062480	0	58	4. 97	45	45	11.084595	11.084723	11.084850	0		
2	0	11.062602	11.062723	11.062844	45		1" = 24	17	0	11.084978	11.085106	11.085233	45		
15	0	11.062965	11.063086	11.063208	30		2. 49	15	15	11.085361	11.085489	11.085616	30		
30	0	11.063329	11.063450	11.063572	15		3. 73	30	30	11.085744	11.085872	11.086000	15		
45	0	11.063693	11.063815	11.063936	0	57	4. 97	45	45	11.086128	11.086256	11.086384	0		
3	0	11.064058	11.064179	11.064301	45		1" = 24	18	0	11.086512	11.086640	11.086768	45		
15	0	11.064423	11.064544	11.064666	30		2. 49	15	15	11.086896	11.087024	11.087153	30		
30	0	11.064788	11.064909	11.065031	15		3. 73	30	30	11.087281	11.087409	11.087538	15		
45	0	11.065153	11.065275	11.065397	0	56	4. 97	45	45	11.087666	11.087794	11.087923	0		
4	0	11.065519	11.065641	11.065763	45		1" = 24	19	0	11.088051	11.088180	11.088308	45		
15	0	11.065885	11.066007	11.066129	30		2. 49	15	15	11.088437	11.088566	11.088694	30		
30	0	11.066251	11.066373	11.066496	15		3. 73	30	30	11.088823	11.088952	11.089081	15		
45	0	11.066618	11.066740	11.066863	0	55	4. 98	45	45	11.089209	11.089338	11.089467	0		
5	0	11.066985	11.067107	11.067230	45		1" = 25	20	0	11.089596	11.089725	11.089854	45		
15	0	11.067352	11.067475	11.067597	30		2. 49	15	15	11.089983	11.090112	11.090241	30		
30	0	11.067720	11.067842	11.067965	15		3. 74	30	30	11.090371	11.090500	11.090629	15		
45	0	11.068088	11.068210	11.068333	0	54	4. 98	45	45	11.090758	11.090888	11.091017	0		
6	0	11.068456	11.068579	11.068702	45		1" = 25	21	0	11.091146	11.091276	11.091405	45		
15	0	11.068825	11.068948	11.069070	30		2. 49	15	15	11.091535	11.091665	11.091794	30		
30	0	11.069193	11.069316	11.069440	15		3. 74	30	30	11.091924	11.092053	11.092183	15		
45	0	11.069563	11.069686	11.069809	0	53	4. 98	45	45	11.092313	11.092443	11.092573	0		
7	0	11.069932	11.070055	11.070179	45		1" = 25	22	0	11.092702	11.092832	11.092962	45		
15	0	11.070302	11.070425	11.070549	30		2. 49	15	15	11.093092	11.093222	11.093352	30		
30	0	11.070672	11.070796	11.070919	15		3. 74	30	30	11.093483	11.093613	11.093743	15		
45	0	11.071043	11.071166	11.071290	0	52	4. 99	45	45	11.093873	11.094003	11.094134	0		
8	0	11.071413	11.071537	11.071661	45		1" = 25	23	0	11.094264	11.094394	11.094525	45		
15	0	11.071784	11.071908	11.072032	30		2. 50	15	15	11.094655	11.094786	11.094916	30		
30	0	11.072156	11.072280	11.072404	15		3. 74	30	30	11.095047	11.095178	11.095308	15		
45	0	11.072528	11.072652	11.072776	0	51	4. 99	45	45	11.095439	11.095570	11.095701	0		
9	0	11.072900	11.073024	11.073148	45		1" = 25	24	0	11.095831	11.095962	11.096093	45		
15	0	11.073272	11.073396	11.073520	30		2. 50	15	15	11.096224	11.096355	11.096486	30		
30	0	11.073645	11.073769	11.073893	15		3. 75	30	30	11.096617	11.096748	11.096879	15		
45	0	11.074018	11.074142	11.074267	0	50	4. 99	45	45	11.097011	11.097142	11.097273	0		
10	0	11.074391	11.074516	11.074640	45		1" = 25	25	0	11.097404	11.097536	11.097667	45		
15	0	11.074765	11.074889	11.075014	30		2. 50	15	15	11.097799	11.097930	11.098062	30		
30	0	11.075139	11.075263	11.075388	15		3. 75	30	30	11.098193	11.098325	11.098456	15		
45	0	11.075513	11.075638	11.075763	0	49	4. 100	45	45	11.098588	11.098720	11.098851	0		
11	0	11.075888	11.076013	11.076138	45		1" = 25	26	0	11.098983	11.099115	11.099247	45		
15	0	11.076263	11.076388	11.076513	30		2. 50	15	15	11.099379	11.099511	11.099643	30		
30	0	11.076638	11.076763	11.076888	15		3. 75	30	30	11.099775	11.099907	11.100039	15		
45	0	11.077014	11.077139	11.077264	0	48	4. 100	45	45	11.100171	11.100303	11.100435	0		
12	0	11.077389	11.077515	11.077640	45		1" = 25	27	0	11.100568	11.100700	11.100832	45		
15	0	11.077766	11.077891	11.078017	30		2. 50	15	15	11.100965	11.101097	11.101230	30		
30	0	11.078142	11.078268	11.078394	15		3. 75	30	30	11.101362	11.101495	11.101627	15		
45	0	11.078519	11.078645	11.078771	0	47	4. 100	45	45	11.101760	11.101893	11.102025	0		
13	0	11.078897	11.079022	11.079148	45		1" = 25	28	0	11.102158	11.102291	11.102424	45		
15	0	11.079274	11.079400	11.079526	30		2. 50	15	15	11.102557	11.102690	11.102823	30		
30	0	11.079652	11.079778	11.079904	15		3. 76	30	30	11.102959	11.103090	11.103222	15		
45	0	11.080030	11.080156	11.080283	0	46	4. 101	45	45	11.103355	11.103488	11.103621	0		
14	0	11.080409	11.080535	11.080661	45		1" = 25	29	0	11.103754	11.103888	11.104021	45		
15	0	11.080788	11.080914	11.081041	30		2. 51	15	15	11.104154	11.104288	11.104421	30		
30	0	11.081167	11.081294	11.081420	15		3. 76	30	30	11.104555	11.104688	11.104822	15		
45	0	11.081547	11.081673	11.081800	0	45	4. 101	45	45	11.104956	11.105089	11.105223	0		
Minutes Seconds		15"	10"	5"	Seconds Minutes		Proport. parts.	Minutes Seconds		Co-secant of 4 degrees, or Secant of 94 degrees.			Seconds Minutes		Proport. parts.

LOGARITHMIC SECANTS.

Tangent of 85 degrees, or secant of 175 degrees.			Secant of 85 degrees, or Co-secant of 175 degrees.		
5'	10'	Seconds	0'	5'	10'
5357	11.105490	11.105624	45	11.130132	11.130274
5758	11.105892	11.106026	15	11.130557	11.130699
6160	11.106294	11.106428	30	11.130983	11.131125
6562	11.106696	11.106831	45	11.131409	11.131551
6965	11.107099	11.107233	15	11.131835	11.131978
7368	11.107502	11.107637	30	11.132262	11.132405
7771	11.107906	11.108040	45	11.132690	11.132832
8175	11.108310	11.108444	15	11.133117	11.133260
8579	11.108714	11.108849	30	11.133545	11.133688
8984	11.109118	11.109253	45	11.133974	11.134117
9388	11.109523	11.109659	15	11.134403	11.134546
9794	11.109929	11.110064	30	11.134832	11.134976
0199	11.110335	11.110470	45	11.135262	11.135406
0605	11.110741	11.110876	15	11.135693	11.135836
1012	11.111147	11.111283	30	11.136123	11.136267
1418	11.111554	11.111690	45	11.136554	11.136698
1826	11.111961	11.112097	15	11.136986	11.137130
2233	11.112369	11.112505	30	11.137418	11.137562
2641	11.112777	11.112913	45	11.137850	11.137995
3049	11.113186	11.113322	15	11.138283	11.138428
3458	11.113594	11.113731	30	11.138717	11.138861
3867	11.114004	11.114140	45	11.139150	11.139295
4277	11.114413	11.114550	15	11.139585	11.139729
4687	11.114823	11.114960	30	11.140019	11.140164
5097	11.115234	11.115371	45	11.140454	11.140599
5508	11.115644	11.115781	15	11.140890	11.141035
5919	11.116056	11.116193	30	11.141326	11.141471
6330	11.116467	11.116604	45	11.141762	11.141908
6742	11.116879	11.117017	15	11.142199	11.142345
7154	11.117292	11.117429	30	11.142636	11.142782
7567	11.117704	11.117842	45	11.143074	11.143220
7980	11.118117	11.118255	15	11.143512	11.143658
8393	11.118531	11.118669	30	11.143951	11.144097
8807	11.118945	11.119083	45	11.144390	11.144536
9221	11.119359	11.119497	15	11.144829	11.144976
9636	11.119774	11.119912	30	11.145269	11.145416
0051	11.120189	11.120328	45	11.145709	11.145856
0466	11.120605	11.120743	15	11.146150	11.146297
0882	11.121020	11.121159	30	11.146592	11.146739
1298	11.121437	11.121576	45	11.147033	11.147181
1715	11.121854	11.121993	15	11.147475	11.147623
2132	11.122271	11.122410	30	11.147918	11.148066
2549	11.122688	11.122827	45	11.148361	11.148509
2967	11.123106	11.123246	15	11.148805	11.148953
3385	11.123524	11.123664	30	11.149249	11.149397
3804	11.123943	11.124083	45	11.149693	11.149841
4223	11.124362	11.124502	15	11.150138	11.150286
4642	11.124782	11.124922	30	11.150583	11.150732
5062	11.125202	11.125342	45	11.151029	11.151178
5482	11.125622	11.125763	15	11.151476	11.151624
5903	11.126043	11.126183	30	11.151922	11.152071
6324	11.126464	11.126605	45	11.152370	11.152519
6745	11.126886	11.127027	15	11.152817	11.152967
7167	11.127308	11.127449	30	11.153265	11.153415
7589	11.127730	11.127871	45	11.153714	11.153864
8012	11.128153	11.128294	15	11.154163	11.154313
8435	11.128576	11.128718	30	11.154613	11.154763
8859	11.129000	11.129141	45	11.155063	11.155213
9283	11.129424	11.129566	15	11.155513	11.155663
9707	11.129849	11.129990	30	11.155964	11.156114
5'	10'	Seconds	15'	10'	5'
-secant of 4 degrees, or Secant of 94 degrees.			Co-secant of 4 degrees, or Secant of 94 degrees.		

LOGARITHMIC SECANTS.

Minutes Seconds		Secant of 86 degrees, or Co-secant of 176 degrees.			Seconds Minutes		Proport. parts.	Minutes Seconds		Secant of 86 degrees, or Co-secant of 176 degrees.			Seconds Minutes		Proport. parts.	
		0'	5'	10'						0'	5'	10'				
0	0	11.156415	11.156566	11.156717	45		1" = 30	15	0	11.184401	11.184562	11.184723	45			
	15	11.156807	11.157018	11.157169	30		2. 60		15	11.184884	11.185044	11.185205	30			
	30	11.157320	11.157471	11.157622	15		3. 90		30	11.185366	11.185527	11.185688	15			
	45	11.157773	11.157924	11.158075	0	59	4. 121		45	11.185849	11.186011	11.186172	0	44		
1	0	11.158226	11.158377	11.158528	45		1 = 30		16	0	11.186333	11.186495	11.186656	45		
	15	11.158680	11.158831	11.158982	30		2. 61		15	11.186817	11.186979	11.187141	30			
	30	11.159134	11.159285	11.159437	15		3. 91		30	11.187302	11.187464	11.187626	15			
	45	11.159589	11.159740	11.159892	0	58	4. 121		45	11.187788	11.187950	11.188112	0	43		
2	0	11.160044	11.160196	11.160348	45		1 = 30		17	0	11.188274	11.188436	11.188598	45		
	15	11.160500	11.160652	11.160804	30		2. 61		15	11.188760	11.188922	11.189085	30			
	30	11.160956	11.161108	11.161260	15		3. 91		30	11.189247	11.189410	11.189572	15			
	45	11.161412	11.161565	11.161717	0	57	4. 122		45	11.189735	11.189897	11.190060	0	42		
3	0	11.161870	11.162022	11.162175	45		1 = 31		18	0	11.190223	11.190386	11.190548	45		
	15	11.162327	11.162480	11.162633	30		2. 61		15	11.190711	11.190874	11.191038	30			
	30	11.162785	11.162938	11.163091	15		3. 92		30	11.191201	11.191364	11.191527	15			
	45	11.163244	11.163397	11.163550	0	56	4. 122		45	11.191690	11.191854	11.192017	0	41		
4	0	11.163703	11.163856	11.164009	45		1 = 31		19	0	11.192181	11.192344	11.192508	45		
	15	11.164163	11.164316	11.164469	30		2. 61		15	11.192672	11.192835	11.192999	30			
	30	11.164623	11.164776	11.164930	15		3. 92		30	11.193163	11.193327	11.193491	15			
	45	11.165083	11.165237	11.165391	0	55	4. 123		45	11.193655	11.193819	11.193983	0	40		
5	0	11.165544	11.165698	11.165852	45		1 = 31		20	0	11.194148	11.194312	11.194476	45		
	15	11.166006	11.166160	11.166314	30		2. 62		15	11.194641	11.194805	11.194970	30			
	30	11.166468	11.166622	11.166776	15		3. 92		30	11.195134	11.195299	11.195464	15			
	45	11.166930	11.167085	11.167239	0	54	4. 123		45	11.195629	11.195794	11.195959	0	39		
6	0	11.167393	11.167548	11.167702	45		1 = 31		21	0	11.196124	11.196289	11.196454	45		
	15	11.167857	11.168012	11.168166	30		2. 62		15	11.196619	11.196784	11.196949	30			
	30	11.168321	11.168476	11.168631	15		3. 93		30	11.197115	11.197280	11.197446	15			
	45	11.168785	11.168940	11.169095	0	53	4. 124		45	11.197611	11.197777	11.197943	0	38		
7	0	11.169250	11.169406	11.169561	45		1 = 31		22	0	11.198108	11.198274	11.198440	45		
	15	11.169716	11.169871	11.170027	30		2. 62		15	11.198606	11.198772	11.198938	30			
	30	11.170182	11.170337	11.170493	15		3. 93		30	11.199104	11.199271	11.199437	15			
	45	11.170649	11.170804	11.170960	0	52	4. 124		45	11.199603	11.199770	11.199936	0	37		
8	0	11.171116	11.171271	11.171427	45		1 = 31		23	0	11.200103	11.200269	11.200436	45		
	15	11.171583	11.171739	11.171895	30		2. 62		15	11.200603	11.200769	11.200936	30			
	30	11.172051	11.172207	11.172363	15		3. 94		30	11.201103	11.201270	11.201437	15			
	45	11.172520	11.172676	11.172832	0	51	4. 125		45	11.201604	11.201771	11.201939	0	36		
9	0	11.172989	11.173145	11.173302	45		1 = 31		24	0	11.202106	11.202273	11.202441	45		
	15	11.173458	11.173615	11.173772	30		2. 63		15	11.202608	11.202776	11.202943	30			
	30	11.173928	11.174085	11.174242	15		3. 94		30	11.203111	11.203279	11.203447	15			
	45	11.174399	11.174556	11.174713	0	50	4. 125		45	11.203614	11.203782	11.203950	0	35		
10	0	11.174870	11.175027	11.175184	45		1 = 31		25	0	11.204119	11.204287	11.204455	45		
	15	11.175342	11.175499	11.175656	30		2. 63		15	11.204623	11.204791	11.204960	30			
	30	11.175814	11.175971	11.176129	15		3. 94		30	11.205128	11.205297	11.205466	15			
	45	11.176286	11.176444	11.176602	0	49	4. 126		45	11.205634	11.205803	11.205972	0	34		
11	0	11.176760	11.176917	11.177075	45		1 = 32		26	0	11.206141	11.206310	11.206479	45		
	15	11.177233	11.177391	11.177549	30		2. 63		15	11.206648	11.206817	11.206986	30			
	30	11.177707	11.177866	11.178024	15		3. 95		30	11.207155	11.207324	11.207494	15			
	45	11.178182	11.178341	11.178499	0	48	4. 126		45	11.207663	11.207833	11.208002	0	33		
12	0	11.178657	11.178816	11.178975	45		1 = 32		27	0	11.208172	11.208342	11.208512	45		
	15	11.179133	11.179292	11.179451	30		2. 64		15	11.208682	11.208851	11.209021	30			
	30	11.179609	11.179768	11.179927	15		3. 95		30	11.209192	11.209362	11.209532	15			
	45	11.180086	11.180245	11.180404	0	47	4. 127		45	11.209702	11.209872	11.210043	0	32		
13	0	11.180564	11.180723	11.180882	45		1 = 32		28	0	11.210213	11.210384	11.210554	45		
	15	11.181041	11.181201	11.181360	30		2. 64		15	11.210725	11.210896	11.211067	30			
	30	11.181520	11.181679	11.181839	15		3. 96		30	11.211237	11.211408	11.211579	15			
	45	11.181999	11.182159	11.182318	0	46	4. 128		45	11.211750	11.211922	11.212093	0	31		
14	0	11.182478	11.182638	11.182798	45		1 = 32		29	0	11.212264	11.212435	11.212607	45		
	15	11.182958	11.183118	11.183279	30		2. 64		15	11.212778	11.212950	11.213121	30			
	30	11.183439	11.183599	11.183759	15		3. 96		30	11.213293	11.213465	11.213637	15			
	45	11.183920	11.184080	11.184241	0	45	4. 128		45	11.213809	11.213981	11.214153	0	30		
		15"	10"	5"						15'	10'	5'				
Minutes Seconds		Co-secant of 3 degrees, or Secant of 93 degrees.			Seconds Minutes		Proport. parts.	Minutes Seconds		Co-secant of 3 degrees, or Secant of 93 degrees.			Seconds Minutes		Proport. parts.	
		0'	5'	10'						0'	5'	10'				

LOGARITHMIC SECANTS.

Lat. of 86 degrees, or Lat. of 176 degrees.					Secant of 86 degrees, or Co-secant of 176 degrees.					Lat. of 86 degrees, or Lat. of 176 degrees.					Secant of 86 degrees, or Co-secant of 176 degrees.									
5°		10°		Seconds	Minutes	Proport. parts.	0°		5°		10°		Seconds	Minutes	Proport. parts.	0°		5°		10°		Seconds	Minutes	Proport. parts.
25	11.214497	11.214669	45	1" = 34	45	0	11.246472	11.246658	11.246843	45	1" = 37	45	1" = 37	45	1" = 37	45	0	11.246472	11.246658	11.246843	45	1" = 37	45	1" = 37
41	11.215014	11.215186	30	2. 69	15	15	11.247029	11.247214	11.247400	30	2. 74	30	2. 74	30	2. 74	30	2. 74	11.247029	11.247214	11.247400	30	2. 74	30	2. 74
59	11.215531	11.215704	15	3. 103	30	30	11.247586	11.247772	11.247958	15	3. 111	15	3. 111	15	3. 111	15	3. 111	11.247586	11.247772	11.247958	15	3. 111	15	3. 111
77	11.216049	11.216222	0	4. 138	45	45	11.248144	11.248330	11.248516	0	4. 149	0	4. 149	0	4. 149	0	4. 149	11.248144	11.248330	11.248516	0	4. 149	0	4. 149
95	11.216568	11.216741	45	1 = 35	46	0	11.248703	11.248889	11.249076	45	1 = 37	45	1 = 37	45	1 = 37	45	1 = 37	11.248703	11.248889	11.249076	45	1 = 37	45	1 = 37
14	11.217087	11.217261	30	2. 69	15	15	11.249262	11.249449	11.249635	30	2. 75	30	2. 75	30	2. 75	30	2. 75	11.249262	11.249449	11.249635	30	2. 75	30	2. 75
34	11.217607	11.217781	15	3. 104	30	30	11.249822	11.250009	11.250196	15	3. 112	15	3. 112	15	3. 112	15	3. 112	11.249822	11.250009	11.250196	15	3. 112	15	3. 112
54	11.218128	11.218302	0	4. 139	45	45	11.250383	11.250570	11.250757	0	4. 144	0	4. 144	0	4. 144	0	4. 144	11.250383	11.250570	11.250757	0	4. 144	0	4. 144
76	11.218649	11.218823	45	1 = 35	47	0	11.250945	11.251132	11.251319	45	1 = 38	45	1 = 38	45	1 = 38	45	1 = 38	11.250945	11.251132	11.251319	45	1 = 38	45	1 = 38
97	11.219171	11.219345	30	2. 70	15	15	11.251507	11.251695	11.251882	30	2. 75	30	2. 75	30	2. 75	30	2. 75	11.251507	11.251695	11.251882	30	2. 75	30	2. 75
19	11.219694	11.219868	15	3. 104	30	30	11.252070	11.252258	11.252446	15	3. 113	15	3. 113	15	3. 113	15	3. 113	11.252070	11.252258	11.252446	15	3. 113	15	3. 113
42	11.220217	11.220391	0	4. 139	45	45	11.252634	11.252822	11.253010	0	4. 150	0	4. 150	0	4. 150	0	4. 150	11.252634	11.252822	11.253010	0	4. 150	0	4. 150
66	11.220741	11.220915	45	1 = 35	48	0	11.253198	11.253387	11.253575	45	1 = 38	45	1 = 38	45	1 = 38	45	1 = 38	11.253198	11.253387	11.253575	45	1 = 38	45	1 = 38
90	11.221265	11.221440	30	2. 70	15	15	11.253764	11.253952	11.254141	30	2. 75	30	2. 75	30	2. 75	30	2. 75	11.253764	11.253952	11.254141	30	2. 75	30	2. 75
15	11.221790	11.221965	15	3. 105	30	30	11.254330	11.254519	11.254707	15	3. 113	15	3. 113	15	3. 113	15	3. 113	11.254330	11.254519	11.254707	15	3. 113	15	3. 113
40	11.222316	11.222491	0	4. 140	45	45	11.254896	11.255086	11.255275	0	4. 151	0	4. 151	0	4. 151	0	4. 151	11.254896	11.255086	11.255275	0	4. 151	0	4. 151
67	11.222842	11.223018	45	1 = 35	49	0	11.255464	11.255653	11.255843	45	1 = 38	45	1 = 38	45	1 = 38	45	1 = 38	11.255464	11.255653	11.255843	45	1 = 38	45	1 = 38
93	11.223369	11.223545	30	2. 70	15	15	11.256032	11.256222	11.256411	30	2. 76	30	2. 76	30	2. 76	30	2. 76	11.256032	11.256222	11.256411	30	2. 76	30	2. 76
13	11.223897	11.224073	15	3. 105	30	30	11.256601	11.256791	11.256981	15	3. 114	15	3. 114	15	3. 114	15	3. 114	11.256601	11.256791	11.256981	15	3. 114	15	3. 114
39	11.224425	11.224601	0	4. 141	45	45	11.257171	11.257361	11.257551	0	4. 152	0	4. 152	0	4. 152	0	4. 152	11.257171	11.257361	11.257551	0	4. 152	0	4. 152
67	11.224954	11.225130	45	1 = 35	50	0	11.257741	11.257932	11.258122	45	1 = 38	45	1 = 38	45	1 = 38	45	1 = 38	11.257741	11.257932	11.258122	45	1 = 38	45	1 = 38
97	11.225483	11.225660	30	2. 71	15	15	11.258313	11.258503	11.258694	30	2. 76	30	2. 76	30	2. 76	30	2. 76	11.258313	11.258503	11.258694	30	2. 76	30	2. 76
17	11.226013	11.226190	15	3. 106	30	30	11.258885	11.259075	11.259266	15	3. 114	15	3. 114	15	3. 114	15	3. 114	11.258885	11.259075	11.259266	15	3. 114	15	3. 114
47	11.226544	11.226721	0	4. 141	45	45	11.259457	11.259648	11.259840	0	4. 153	0	4. 153	0	4. 153	0	4. 153	11.259457	11.259648	11.259840	0	4. 153	0	4. 153
69	11.227076	11.227253	45	1 = 36	51	0	11.260031	11.260222	11.260414	45	1 = 38	45	1 = 38	45	1 = 38	45	1 = 38	11.260031	11.260222	11.260414	45	1 = 38	45	1 = 38
91	11.227608	11.227785	30	2. 71	15	15	11.260605	11.260797	11.260988	30	2. 77	30	2. 77	30	2. 77	30	2. 77	11.260605	11.260797	11.260988	30	2. 77	30	2. 77
11	11.228141	11.228319	15	3. 107	30	30	11.261180	11.261372	11.261564	15	3. 115	15	3. 115	15	3. 115	15	3. 115	11.261180	11.261372	11.261564	15	3. 115	15	3. 115
36	11.228674	11.228852	0	4. 142	45	45	11.261756	11.261948	11.262141	0	4. 153	0	4. 153	0	4. 153	0	4. 153	11.261756	11.261948	11.262141	0	4. 153	0	4. 153
61	11.229208	11.229387	45	1 = 36	52	0	11.262332	11.262525	11.262717	45	1 = 39	45	1 = 39	45	1 = 39	45	1 = 39	11.262332	11.262525	11.262717	45	1 = 39	45	1 = 39
85	11.229743	11.229922	30	2. 71	15	15	11.262910	11.263102	11.263295	30	2. 77	30	2. 77	30	2. 77	30	2. 77	11.262910	11.263102	11.263295	30	2. 77	30	2. 77
10	11.230279	11.230457	15	3. 107	30	30	11.263488	11.263681	11.263874	15	3. 116	15	3. 116	15	3. 116	15	3. 116	11.263488	11.263681	11.263874	15	3. 116	15	3. 116
35	11.230815	11.230993	0	4. 143	45	45	11.264067	11.264260	11.264453	0	4. 154	0	4. 154	0	4. 154	0	4. 154	11.264067	11.264260	11.264453	0	4. 154	0	4. 154
60	11.231351	11.231530	45	1 = 36	53	0	11.264646	11.264840	11.265033	45	1 = 39	45	1 = 39	45	1 = 39	45	1 = 39	11.264646	11.264840	11.265033	45	1 = 39	45	1 = 39
84	11.231889	11.232068	30	2. 72	15	15	11.265227	11.265420	11.265614	30	2. 78	30	2. 78	30	2. 78	30	2. 78	11.265227	11.265420	11.265614	30	2. 78	30	2. 78
14	11.232427	11.232606	15	3. 108	30	30	11.265808	11.266002	11.266196	15	3. 116	15	3. 116	15	3. 116	15	3. 116	11.265808	11.266002	11.266196	15	3. 116	15	3. 116
39	11.232966	11.233145	0	4. 143	45	45	11.266390	11.266584	11.266778	0	4. 155	0	4. 155	0	4. 155	0	4. 155	11.266390	11.266584	11.266778	0	4. 155	0	4. 155
64	11.233505	11.233685	45	1 = 36	54	0	11.266973	11.267167	11.267362	45	1 = 39	45	1 = 39	45	1 = 39	45	1 = 39	11.266973	11.267167	11.267362	45	1 = 39	45	1 = 39
88	11.234045	11.234225	30	2. 72	15	15	11.267556	11.267751	11.267946	30	2. 78	30	2. 78	30	2. 78	30	2. 78	11.267556	11.267751	11.267946	30	2. 78	30	2. 78
18	11.234586	11.234766	15	3. 108	30	30	11.268141	11.268336	11.268531	15	3. 117	15	3. 117	15	3. 117	15	3. 117	11.268141	11.268336	11.268531	15	3. 117	15	3. 117
43	11.235128	11.235308	0	4. 144	45	45	11.268726	11.268921	11.269116	0	4. 156	0	4. 156	0	4. 156	0	4. 156	11.268726	11.268921	11.269116	0	4. 156	0	4. 156
68	11.235670	11.235851	45	1 = 36	55	0	11.269312	11.269507	11.269703	45	1 = 39	45	1 = 39	45	1 = 39	45	1 = 39	11.269312	11.269507	11.269703	45	1 = 39	45	1 = 39
92	11.236212	11.236394	30	2. 72	15	15	11.269898	11.270094	11.270290	30	2. 78	30	2. 78	30	2. 78	30	2. 78	11.269898	11.270094	11.270290	30	2. 78	30	2. 78
16	11.236756	11.236937	15	3. 109	30	30	11.270486	11.270682	11.270878	15	3. 118	15	3. 118	15	3. 118	15	3. 118	11.270486	11.270682	11.270878	15	3. 118	15	3. 118
41	11.237300	11.237482	0	4. 145	45	45	11.271074	11.271271	11.271467	0	4. 157	0	4. 157	0	4. 157	0	4. 157	11.271074	11.271271	11.271467	0	4. 157	0	4. 157
66	11.237845	11.238027	45	1 = 36	56	0	11.271663	11.271860	11.272057	45	1 = 39	45	1 = 39	45	1 = 39	45	1 = 39	11.271663	11.271860	11.272057	45	1 = 39	45	1 = 39
90	11.238391	11.238573	30	2. 73	15	15	11.272253	11.272450	11.272647	30	2. 79	30	2. 79	30	2. 79	30	2. 79	11.272253	11.272450	11.272647	30	2. 79	30	2. 79
14	11.238937	11.239119	15	3. 109	30	30	11.272844	11.273041	11.273238	15	3. 118	15	3. 118	15	3. 118	15	3. 118	11.272844	11.273041	11.273238	15	3. 118	15	3. 118

LOGARITHMIC SECANTS.

		Secant of 87 degrees, or Co-secant of 177 degrees.							Secant of 87 degrees, or Co-secant of 177 degrees.						
Minutes	Seconds	0"	5"	10"	Seconds	Minutes	Proper parts.	Minutes	Seconds	0"	5"	10"	Seconds		
0	0	11.281200	11.281401	11.281602	45	1"	= 40	15	0	11.318957	11.319176	11.319395	45		
15	15	11.281803	11.282004	11.282205	30	2.	81	15	15	11.319615	11.319834	11.320054	30		
30	30	11.282403	11.282608	11.282810	15	3.	121	30	30	11.320274	11.320494	11.320714	15		
45	45	11.283011	11.283213	11.283415	0	4.	161	45	45	11.320934	11.321154	11.321374	0		
1	0	11.283617	11.283819	11.284021	45	1	= 40	16	0	11.321595	11.321815	11.322036	45		
15	15	11.284223	11.284426	11.284628	30	2.	81	15	15	11.322257	11.322478	11.322699	30		
30	30	11.284831	11.285033	11.285236	15	3.	121	30	30	11.322920	11.323141	11.323362	15		
45	45	11.285439	11.285642	11.285845	0	4.	162	45	45	11.323584	11.323805	11.324027	0		
2	0	11.286048	11.286251	11.286454	45	1	= 41	17	0	11.324249	11.324471	11.324693	45		
15	15	11.286658	11.286861	11.287065	30	2.	81	15	15	11.324915	11.325137	11.325360	30		
30	30	11.287268	11.287472	11.287676	15	3.	122	30	30	11.325582	11.325805	11.326028	15		
45	45	11.287880	11.288084	11.288288	0	4.	163	45	45	11.326250	11.326473	11.326696	0		
3	0	11.288492	11.288697	11.288901	45	1	= 41	18	0	11.326920	11.327143	11.327366	45		
15	15	11.289106	11.289310	11.289515	30	2.	82	15	15	11.327590	11.327813	11.328037	30		
30	30	11.289720	11.289925	11.290130	15	3.	123	30	30	11.328261	11.328485	11.328709	15		
45	45	11.290335	11.290540	11.290745	0	4.	164	45	45	11.328933	11.329158	11.329382	0		
4	0	11.290951	11.291156	11.291362	45	1	= 41	19	0	11.329607	11.329831	11.330056	45		
15	15	11.291568	11.291773	11.291979	30	2.	82	15	15	11.330281	11.330506	11.330731	30		
30	30	11.292185	11.292391	11.292598	15	3.	124	30	30	11.330957	11.331182	11.331407	15		
45	45	11.292804	11.293010	11.293217	0	4.	165	45	45	11.331633	11.331859	11.332085	0		
5	0	11.293423	11.293630	11.293837	45	1	= 41	20	0	11.332311	11.332537	11.332763	45		
15	15	11.294044	11.294251	11.294458	30	2.	83	15	15	11.332989	11.333216	11.333442	30		
30	30	11.294665	11.294872	11.295080	15	3.	124	30	30	11.333669	11.333896	11.334123	15		
45	45	11.295287	11.295495	11.295702	0	4.	166	45	45	11.334350	11.334577	11.334804	0		
6	0	11.295910	11.296118	11.296326	45	1	= 42	21	0	11.335032	11.335259	11.335487	45		
15	15	11.296534	11.296742	11.296950	30	2.	83	15	15	11.335714	11.335942	11.336170	30		
30	30	11.297159	11.297367	11.297576	15	3.	125	30	30	11.336398	11.336627	11.336855	15		
45	45	11.297784	11.297993	11.298202	0	4.	167	45	45	11.337084	11.337312	11.337541	0		
7	0	11.298411	11.298620	11.298829	45	1	= 42	22	0	11.337770	11.337999	11.338228	45		
15	15	11.299039	11.299248	11.299457	30	2.	84	15	15	11.338457	11.338686	11.338916	30		
30	30	11.299667	11.299877	11.300086	15	3.	126	30	30	11.339145	11.339375	11.339605	15		
45	45	11.300296	11.300506	11.300716	0	4.	168	45	45	11.339835	11.340065	11.340295	0		
8	0	11.300927	11.301137	11.301347	45	1	= 42	23	0	11.340525	11.340756	11.340986	45		
15	15	11.301558	11.301768	11.301979	30	2.	84	15	15	11.341217	11.341448	11.341679	30		
30	30	11.302190	11.302401	11.302612	15	3.	126	30	30	11.341910	11.342141	11.342372	15		
45	45	11.302823	11.303034	11.303245	0	4.	169	45	45	11.342603	11.342835	11.343067	0		
9	0	11.303457	11.303668	11.303880	45	1	= 42	24	0	11.343298	11.343530	11.343762	45		
15	15	11.304092	11.304304	11.304516	30	2.	85	15	15	11.343994	11.344227	11.344459	30		
30	30	11.304728	11.304940	11.305152	15	3.	127	30	30	11.344692	11.344924	11.345157	15		
45	45	11.305364	11.305577	11.305789	0	4.	170	45	45	11.345390	11.345623	11.345856	0		
10	0	11.306002	11.306215	11.306428	45	1	= 43	25	0	11.346080	11.346323	11.346556	45		
15	15	11.306641	11.306854	11.307067	30	2.	85	15	15	11.346790	11.347024	11.347258	30		
30	30	11.307280	11.307494	11.307707	15	3.	128	30	30	11.347492	11.347726	11.347960	15		
45	45	11.307921	11.308134	11.308348	0	4.	171	45	45	11.348194	11.348429	11.348664	0		
11	0	11.308562	11.308776	11.308990	45	1	= 43	26	0	11.348898	11.349133	11.349368	45		
15	15	11.309204	11.309419	11.309633	30	2.	86	15	15	11.349604	11.349839	11.350074	30		
30	30	11.309848	11.310063	11.310277	15	3.	129	30	30	11.350310	11.350545	11.350781	15		
45	45	11.310492	11.310707	11.310922	0	4.	172	45	45	11.351017	11.351253	11.351489	0		
12	0	11.311137	11.311353	11.311568	45	1	= 43	27	0	11.351726	11.351962	11.352199	45		
15	15	11.311784	11.311999	11.312215	30	2.	86	15	15	11.352436	11.352672	11.352909	30		
30	30	11.312431	11.312647	11.312863	15	3.	129	30	30	11.353146	11.353384	11.353621	15		
45	45	11.313079	11.313295	11.313512	0	4.	173	45	45	11.353859	11.354096	11.354334	0		
13	0	11.313728	11.313945	11.314161	45	1	= 43	28	0	11.354572	11.354810	11.355048	45		
15	15	11.314378	11.314595	11.314812	30	2.	87	15	15	11.355286	11.355525	11.355763	30		
30	30	11.315029	11.315247	11.315464	15	3.	130	30	30	11.356002	11.356241	11.356480	15		
45	45	11.315681	11.315899	11.316117	0	4.	174	45	45	11.356719	11.356958	11.357197	0		
14	0	11.316335	11.316552	11.316770	45	1	= 44	29	0	11.357437	11.357676	11.357916	45		
15	15	11.316989	11.317207	11.317425	30	2.	87	15	15	11.358156	11.358396	11.358636	30		
30	30	11.317644	11.317862	11.318081	15	3.	131	30	30	11.358876	11.359116	11.359357	15		
45	45	11.318300	11.318519	11.318738	0	4.	175	45	45	11.359598	11.359838	11.360079	0		
15"		10"			5"		15"		10"		5"		Seconds		
Minutes		Co-secant of 2 degrees, or Secant of 92 degrees.			Minutes		Proper parts.		Minutes		Co-secant of 2 degrees, or Secant of 92 degrees.			Seconds	

LOGARITHMIC SECANTS.

Secant of 87 degrees, or Co-secant of 177 degrees.			Seconds	Minutes	Proport. parts.	Secant of 87 degrees, or Co-secant of 177 degrees.			Seconds	Minutes	Proport. parts.
0°	5°	10°				0°	5°	10°			
11.360320	11.360562	11.360803	45	1" = 48		11.406052	11.406320	11.406588	45	1" = 54	
11.361044	11.361286	11.361528	30	2. 97		11.406856	11.407125	11.407393	30	2. 108	
11.361770	11.362012	11.362254	15	3. 145		11.407662	11.407931	11.408201	15	3. 161	
11.362496	11.362738	11.362981	0 29	4. 193		11.408470	11.408739	11.409009	0 14	4. 215	
11.363224	11.363466	11.363709	45	1 = 49		11.409279	11.409549	11.409819	45	1 = 54	
11.363952	11.364196	11.364439	30	2. 97		11.410090	11.410360	11.410631	30	2. 108	
11.364682	11.364926	11.365170	15	3. 146		11.410902	11.411173	11.411444	15	3. 162	
11.365414	11.365658	11.365902	0 28	4. 195		11.411715	11.411987	11.412250	0 13	4. 217	
11.366146	11.366391	11.366635	45	1 = 49		11.412531	11.412803	11.413075	45	1 = 55	
11.366880	11.367125	11.367370	30	2. 98		11.413347	11.413620	11.413893	30	2. 109	
11.367615	11.367860	11.368106	15	3. 147		11.414165	11.414439	11.414712	15	3. 164	
11.368351	11.368597	11.368843	0 27	4. 196		11.414985	11.415250	11.415533	0 12	4. 218	
11.369089	11.369335	11.369581	45	1 = 49		11.415807	11.416081	11.416355	45	1 = 55	
11.369828	11.370074	11.370321	30	2. 99		11.416630	11.416904	11.417179	30	2. 110	
11.370568	11.370815	11.371062	15	3. 148		11.417454	11.417729	11.418005	15	3. 165	
11.371309	11.371556	11.371804	0 26	4. 197		11.418280	11.418556	11.418832	0 11	4. 220	
11.372052	11.372299	11.372547	45	1 = 50		11.419108	11.419384	11.419660	45	1 = 55	
11.372795	11.373044	11.373292	30	2. 99		11.419937	11.420214	11.420491	30	2. 111	
11.373541	11.373789	11.374038	15	3. 149		11.420768	11.421045	11.421322	15	3. 166	
11.374287	11.374536	11.374785	0 25	4. 199		11.421600	11.421878	11.422156	0 10	4. 222	
11.375035	11.375284	11.375534	45	1 = 50		11.422434	11.422712	11.422991	45	1 = 56	
11.375784	11.376034	11.376284	30	2. 100		11.423270	11.423548	11.423828	30	2. 112	
11.376534	11.376784	11.377035	15	3. 150		11.424107	11.424386	11.424666	15	3. 167	
11.377285	11.377536	11.377787	0 24	4. 200		11.424946	11.425226	11.425506	0 9	4. 223	
11.378038	11.378290	11.378541	45	1 = 50		11.425786	11.426067	11.426347	45	1 = 56	
11.378793	11.379044	11.379296	30	2. 101		11.426628	11.426909	11.427190	30	2. 113	
11.379548	11.379800	11.380052	15	3. 151		11.427472	11.427753	11.428035	15	3. 169	
11.380305	11.380557	11.380810	0 23	4. 202		11.428317	11.428599	11.428882	0 8	4. 225	
11.381063	11.381316	11.381569	45	1 = 51		11.429164	11.429447	11.429730	45	1 = 57	
11.381823	11.382076	11.382330	30	2. 101		11.430013	11.430296	11.430580	30	2. 113	
11.382583	11.382837	11.383091	15	3. 152		11.430863	11.431147	11.431431	15	3. 170	
11.383345	11.383600	11.383854	0 22	4. 203		11.431715	11.432000	11.432284	0 7	4. 227	
11.384109	11.384364	11.384619	45	1 = 51		11.432569	11.432854	11.433139	45	1 = 57	
11.384874	11.385129	11.385384	30	2. 102		11.433424	11.433710	11.433995	30	2. 114	
11.385640	11.385896	11.386152	15	3. 153		11.434281	11.434567	11.434854	15	3. 171	
11.386408	11.386664	11.386920	0 21	4. 204		11.435140	11.435427	11.435714	0 6	4. 229	
11.387176	11.387433	11.387690	45	1 = 51		11.436001	11.436288	11.436575	45	1 = 58	
11.387947	11.388204	11.388461	30	2. 103		11.436863	11.437150	11.437439	30	2. 115	
11.388718	11.388976	11.389234	15	3. 154		11.437727	11.438015	11.438303	15	3. 173	
11.389491	11.389749	11.390008	0 20	4. 206		11.438592	11.438881	11.439170	0 5	4. 230	
11.390266	11.390524	11.390783	45	1 = 52		11.439460	11.439749	11.440039	45	1 = 58	
11.391042	11.391301	11.391560	30	2. 104		11.440329	11.440619	11.440909	30	2. 116	
11.391819	11.392078	11.392338	15	3. 155		11.441199	11.441490	11.441781	15	3. 174	
11.392597	11.392857	11.393117	0 19	4. 207		11.442072	11.442363	11.442655	0 4	4. 232	
11.393377	11.393638	11.393898	45	1 = 52		11.442946	11.443238	11.443530	45	1 = 59	
11.394159	11.394420	11.394681	30	2. 104		11.443823	11.444115	11.444407	30	2. 117	
11.394942	11.395203	11.395464	15	3. 157		11.444700	11.444993	11.445287	15	3. 176	
11.395726	11.395987	11.396249	0 18	4. 209		11.445580	11.445874	11.446167	0 3	4. 234	
11.396511	11.396774	11.397036	45	1 = 53		11.446461	11.446756	11.447050	45	1 = 59	
11.397298	11.397561	11.397824	30	2. 105		11.447345	11.447639	11.447934	30	2. 118	
11.398087	11.398350	11.398613	15	3. 158		11.448230	11.448525	11.448821	15	3. 177	
11.398877	11.399140	11.399404	0 17	4. 210		11.449117	11.449413	11.449709	0 2	4. 236	
11.399668	11.399932	11.400197	45	1 = 53		11.450005	11.450302	11.450599	45	1 = 60	
11.400461	11.400726	11.400990	30	2. 106		11.450896	11.451193	11.451490	30	2. 119	
11.401255	11.401520	11.401786	15	3. 159		11.451788	11.452086	11.452384	15	3. 179	
11.402051	11.402317	11.402582	0 16	4. 212		11.452682	11.452981	11.453279	0 1	4. 238	
11.402848	11.403114	11.403380	45	1 = 53		11.453578	11.453877	11.454177	45	1 = 60	
11.403647	11.403913	11.404180	30	2. 107		11.454476	11.454776	11.455076	30	2. 120	
11.404447	11.404714	11.404981	15	3. 160		11.455376	11.455676	11.455977	15	3. 180	
11.405249	11.405516	11.405784	0 15	4. 213		11.456277	11.456578	11.456880	0 0	4. 240	
15"	10"	5"	Co-secant of 2 degrees, or Secant of 92 degrees.			15"	10"	5"	Co-secant of 2 degrees, or Secant of 92 degrees.		
Seconds	Minutes	Proport. parts.				Seconds	Minutes	Proport. parts.			

TABLE XXXV.

LOGARITHMIC SECANTS.

		Secant of 88 degrees, or Co-secant of 178 degrees.									
Minutes Seconds		0"	1"	2"	3"	4"	5"	6"	7"	8"	
0	0	11.457181	457241	457301	457362	457422	457482	457543	457603	457663	457723
0	10	11.457784	457845	457905	457965	458026	458086	458147	458207	458267	458327
0	20	11.458388	458449	458509	458570	458630	458691	458751	458812	458872	458932
0	30	11.458993	459054	459115	459175	459236	459296	459357	459417	459477	459537
0	40	11.459599	459660	459721	459781	459842	459903	459963	460024	460085	460145
0	50	11.460206	460267	460327	460388	460449	460510	460570	460631	460692	460752
1	0	11.460814	460874	460935	460996	461057	461118	461179	461239	461300	461360
1	10	11.461422	461483	461544	461605	461666	461727	461788	461848	461909	461969
1	20	11.462031	462092	462153	462214	462275	462336	462397	462458	462519	462579
1	30	11.462641	462702	462764	462825	462886	462947	463008	463069	463130	463190
1	40	11.463253	463314	463375	463436	463497	463558	463620	463681	463742	463802
1	50	11.463864	463926	463987	464048	464109	464171	464232	464293	464354	464414
2	0	11.464477	464538	464600	464661	464722	464784	464845	464907	464968	465028
2	10	11.465091	465152	465214	465275	465336	465398	465459	465521	465582	465642
2	20	11.465705	465767	465828	465890	465951	466013	466074	466136	466197	466257
2	30	11.466321	466382	466444	466505	466567	466629	466690	466752	466813	466873
2	40	11.466937	466998	467060	467122	467183	467245	467307	467369	467430	467490
2	50	11.467554	467616	467677	467739	467801	467863	467925	467986	468048	468108
3	0	11.468172	468234	468296	468357	468419	468481	468543	468605	468667	468728
3	10	11.468791	468853	468915	468976	469038	469100	469162	469224	469286	469347
3	20	11.469410	469472	469534	469596	469658	469720	469782	469844	469906	469967
3	30	11.470031	470093	470155	470217	470279	470341	470403	470465	470527	470588
3	40	11.470653	470715	470777	470839	470901	470963	471025	471087	471149	471210
3	50	11.471275	471337	471400	471462	471524	471586	471649	471711	471773	471834
4	0	11.471898	471961	472023	472085	472148	472210	472273	472335	472398	472459
4	10	11.472522	472585	472647	472710	472772	472835	472897	472960	473022	473084
4	20	11.473148	473211	473273	473335	473398	473460	473523	473586	473648	473710
4	30	11.473774	473836	473899	473962	474024	474087	474150	474212	474275	474337
4	40	11.474400	474463	474526	474589	474651	474714	474777	474840	474903	474965
4	50	11.475028	475091	475154	475217	475280	475343	475405	475468	475531	475593
5	0	11.475657	475720	475783	475846	475909	475972	476035	476098	476161	476223
5	10	11.476287	476350	476413	476476	476539	476602	476665	476728	476791	476854
5	20	11.476917	476980	477043	477107	477170	477233	477296	477359	477422	477485
5	30	11.477549	477612	477675	477738	477801	477865	477928	477991	478054	478117
5	40	11.478181	478244	478308	478371	478434	478498	478561	478624	478688	478751
5	50	11.478814	478878	478941	479005	479068	479131	479195	479258	479322	479385
6	0	11.479449	479512	479576	479639	479703	479766	479830	479893	479957	480020
6	10	11.480084	480147	480211	480274	480338	480402	480465	480529	480593	480656
6	20	11.480720	480784	480847	480911	480975	481038	481102	481166	481230	481293
6	30	11.481357	481421	481484	481548	481612	481676	481740	481803	481867	481930
6	40	11.481995	482059	482123	482186	482250	482314	482378	482442	482506	482569
6	50	11.482634	482698	482762	482826	482890	482954	483018	483082	483146	483209
7	0	11.483274	483338	483402	483466	483530	483594	483658	483722	483786	483850
7	10	11.483914	483979	484043	484107	484171	484235	484299	484363	484427	484491
7	20	11.484556	484620	484685	484749	484813	484877	484942	485006	485070	485134
7	30	11.485199	485263	485327	485392	485456	485521	485585	485649	485714	485778
7	40	11.485842	485907	485971	486036	486100	486165	486229	486294	486358	486422
7	50	11.486487	486552	486616	486681	486745	486810	486874	486939	487003	487067
8	0	11.487133	487197	487262	487326	487391	487456	487520	487585	487650	487714
8	10	11.487779	487844	487909	487973	488038	488103	488168	488232	488297	488361
8	20	11.488427	488491	488556	488621	488686	488751	488816	488880	488945	489009
8	30	11.489075	489140	489205	489270	489335	489400	489465	489530	489595	489659
8	40	11.489725	489790	489855	489920	490005	490050	490115	490180	490245	490309
8	50	11.490375	490440	490505	490570	490635	490701	490766	490831	490896	490960
9	0	11.491026	491092	491157	491222	491287	491352	491418	491483	491548	491612
9	10	11.491679	491744	491809	491875	491940	492005	492071	492136	492201	492265
9	20	11.492332	492397	492463	492528	492594	492659	492724	492790	492855	492919
9	30	11.492986	493052	493117	493183	493248	493314	493379	493445	493511	493575
9	40	11.493642	493707	493773	493838	493904	493970	494035	494101	494167	494231
9	50	11.494298	494364	494429	494495	494561	494626	494692	494758	494824	494888
		10"	9	8	7	6	5	4	3	2	1
Minutes Seconds		Co-secant of 1 degree, or Secant of 91 degrees.									

LOGARITHMIC SECANTS.

Secant of 88 degrees, or Co-secant of 178 degrees.										Seconds	Minutes
0'	1'	2'	3'	4'	5'	6'	7'	8'	9'		
11. 494955	495021	495087	495153	495218	495284	495350	495416	495482	495548	50	
11. 495614	495679	495745	495811	495877	495943	496009	496075	496141	496207	40	
11. 496273	496339	496405	496471	496537	496603	496669	496735	496801	496867	30	
11. 496933	496999	497065	497131	497198	497264	497330	497396	497462	497528	20	
11. 497594	497661	497727	497793	497859	497925	497992	498058	498124	498190	10	
11. 498257	498323	498389	498456	498522	498588	498655	498721	498787	498854	0	49
11. 498920	498986	499053	499119	499186	499252	499319	499385	499451	499518	50	
11. 499584	499651	499717	499784	499850	499917	499984	500050	500117	500183	40	
11. 500250	500316	500383	500450	500516	500583	500650	500716	500783	500850	30	
11. 500916	500983	501050	501116	501183	501250	501317	501383	501450	501517	20	
11. 501584	501650	501717	501784	501851	501918	501985	502051	502118	502185	10	
11. 502252	502319	502386	502453	502520	502587	502654	502721	502788	502855	0	48
11. 502922	502989	503056	503123	503190	503257	503324	503391	503458	503525	50	
11. 503592	503659	503726	503793	503861	503928	503995	504062	504129	504196	40	
11. 504264	504331	504398	504465	504532	504600	504667	504734	504802	504869	30	
11. 504936	505003	505071	505138	505205	505273	505340	505408	505475	505542	20	
11. 505610	505677	505745	505812	505880	505947	506014	506082	506149	506217	10	
11. 506284	506352	506420	506487	506555	506622	506690	506757	506825	506893	0	47
11. 506960	507028	507095	507163	507231	507298	507366	507434	507502	507569	50	
11. 507637	507705	507772	507840	507908	507976	508044	508111	508179	508247	40	
11. 508315	508383	508450	508518	508586	508654	508722	508790	508858	508926	30	
11. 508994	509062	509130	509198	509266	509334	509402	509470	509538	509606	20	
11. 509674	509742	509810	509878	509946	510014	510082	510150	510218	510287	10	
11. 510355	510423	510491	510559	510627	510695	510764	510832	510900	510969	0	46
11. 511037	511105	511173	511242	511310	511378	511447	511515	511583	511652	50	
11. 511720	511788	511857	511925	511994	512062	512130	512199	512267	512336	40	
11. 512404	512473	512541	512610	512678	512747	512815	512884	512952	513021	30	
11. 513090	513158	513227	513295	513364	513433	513501	513570	513639	513707	20	
11. 513776	513845	513913	513982	514051	514120	514188	514257	514325	514395	10	
11. 514463	514532	514601	514670	514739	514808	514876	514945	515014	515083	0	45
11. 515152	515221	515290	515359	515428	515497	515566	515635	515704	515773	50	
11. 515842	515911	515980	516049	516118	516187	516256	516325	516394	516463	40	
11. 516533	516602	516671	516740	516809	516878	516947	517017	517086	517155	30	
11. 517224	517294	517363	517432	517501	517571	517640	517709	517779	517848	20	
11. 517917	517987	518056	518126	518195	518264	518334	518403	518473	518542	10	
11. 518612	518681	518750	518820	518889	518959	519029	519098	519168	519237	0	44
11. 519307	519376	519446	519516	519585	519655	519724	519794	519864	519933	50	
11. 519993	520063	520132	520202	520272	520342	520411	520481	520551	520621	40	
11. 520701	520770	520840	520910	520980	521050	521120	521189	521259	521329	30	
11. 521399	521469	521539	521609	521679	521749	521819	521889	521959	522029	20	
11. 522099	522169	522239	522309	522379	522449	522519	522589	522659	522729	10	
11. 522800	522870	522940	523010	523080	523150	523221	523291	523361	523431	0	43
11. 523502	523572	523642	523712	523783	523853	523923	523994	524064	524134	50	
11. 524205	524275	524345	524416	524486	524557	524627	524698	524768	524838	40	
11. 524909	524979	525050	525120	525191	525261	525332	525403	525473	525544	30	
11. 525614	525685	525756	525826	525897	525967	526038	526109	526179	526250	20	
11. 526321	526392	526462	526533	526604	526675	526745	526816	526887	526958	10	
11. 527029	527099	527170	527241	527312	527383	527454	527525	527596	527666	0	42
11. 527737	527808	527879	527950	528021	528092	528163	528234	528305	528376	50	
11. 528447	528518	528590	528661	528732	528803	528874	528945	529016	529087	40	
11. 529159	529230	529301	529372	529443	529515	529586	529657	529728	529800	30	
11. 529871	529942	530013	530085	530156	530227	530299	530370	530442	530513	20	
11. 530584	530656	530727	530799	530870	530942	531013	531085	531156	531228	10	
11. 531309	531371	531442	531514	531585	531657	531728	531800	531872	531943	0	41
11. 532015	532087	532158	532230	532302	532373	532445	532517	532588	532660	50	
11. 532732	532804	532876	532947	533019	533091	533163	533235	533306	533378	40	
11. 533450	533522	533594	533666	533738	533810	533882	533954	534026	534098	30	
11. 534170	534242	534314	534386	534458	534530	534602	534674	534746	534818	20	
11. 534890	534962	535035	535107	535179	535251	535323	535395	535468	535540	10	
11. 535612	535684	535757	535829	535901	535973	536046	536118	536190	536263	0	40
10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	Seconds	Minutes
Co-secant of 1 degree, or Secant of 91 degrees.											

LOGARITHMIC SECANTS.

		Secant of 88 degrees, or Co-secant of 178 degrees.									
Minutes	Seconds	0'	1'	2'	3'	4'	5'	6'	7'	8'	
20	0	11.536335	536407	536480	536552	536625	536697	536769	536842	536914	5.
10	10	11.537059	537132	537204	537277	537349	537422	537494	537567	537640	5.
20	20	11.537785	537857	537930	538003	538075	538148	538221	538293	538366	5.
30	30	11.538511	538584	538657	538730	538802	538875	538948	539021	539094	5.
40	40	11.539239	539312	539385	539458	539531	539604	539677	539749	539822	5.
50	50	11.539968	540041	540114	540187	540260	540333	540406	540479	540553	5.
21	0	11.540699	540772	540845	540918	540991	541064	541137	541211	541284	54
10	10	11.541430	541503	541577	541650	541723	541796	541870	541943	542016	54
20	20	11.542163	542236	542310	542383	542456	542530	542603	542677	542750	54
30	30	11.542897	542970	543044	543117	543191	543265	543338	543412	543485	54
40	40	11.543632	543706	543779	543853	543927	544000	544074	544148	544221	54
50	50	11.544369	544443	544516	544590	544664	544738	544811	544885	544959	54
22	0	11.545107	545180	545254	545328	545402	545476	545550	545624	545698	54
10	10	11.545846	545920	545994	546068	546142	546216	546290	546364	546438	54
20	20	11.546586	546660	546734	546808	546882	546957	547031	547105	547179	54
30	30	11.547327	547402	547476	547550	547624	547699	547773	547847	547922	54
40	40	11.548070	548145	548219	548293	548368	548442	548517	548591	548666	54
50	50	11.548814	548889	548963	549038	549112	549187	549261	549336	549411	54
23	0	11.549560	549634	549709	549784	549858	549933	550008	550082	550157	55
10	10	11.550306	550381	550456	550531	550605	550680	550755	550830	550905	55
20	20	11.551054	551129	551204	551279	551354	551429	551504	551579	551654	55
30	30	11.551804	551879	551954	552029	552104	552179	552254	552329	552404	55
40	40	11.552554	552629	552704	552779	552855	552930	553005	553080	553155	55
50	50	11.553306	553381	553456	553532	553607	553682	553758	553833	553908	55
24	0	11.554059	554134	554210	554285	554361	554436	554512	554587	554662	55
10	10	11.554813	554889	554965	555040	555116	555191	555267	555342	555418	55
20	20	11.555569	555645	555721	555796	555872	555948	556023	556099	556175	55
30	30	11.556326	556402	556478	556554	556630	556705	556781	556857	556933	55
40	40	11.557085	557161	557237	557312	557388	557464	557540	557616	557692	55
50	50	11.557844	557920	557997	558073	558149	558225	558301	558377	558453	55
25	0	11.558606	558682	558758	558834	558910	558987	559063	559139	559215	55
10	10	11.559368	559444	559521	559597	559673	559750	559826	559902	559979	55
20	20	11.560132	560208	560285	560361	560438	560514	560591	560667	560744	56
30	30	11.560897	560973	561050	561127	561203	561280	561356	561433	561510	56
40	40	11.561663	561740	561817	561893	561970	562047	562124	562200	562277	56
50	50	11.562431	562508	562585	562662	562738	562815	562892	562969	563046	56
26	0	11.563200	563277	563354	563431	563508	563585	563662	563739	563816	56
10	10	11.563971	564048	564125	564202	564279	564356	564434	564511	564588	56
20	20	11.564743	564820	564897	564974	565052	565129	565206	565284	565361	56
30	30	11.565516	565593	565671	565748	565825	565903	565980	566058	566135	56
40	40	11.566290	566368	566446	566523	566601	566678	566756	566833	566911	56
50	50	11.567066	567144	567222	567300	567377	567455	567533	567610	567688	56
27	0	11.567844	567922	568000	568077	568155	568233	568311	568389	568467	56
10	10	11.568623	568701	568779	568857	568935	569013	569091	569169	569247	56
20	20	11.569403	569481	569559	569637	569715	569794	569872	569950	570028	57
30	30	11.570185	570263	570341	570419	570498	570576	570654	570732	570811	57
40	40	11.570968	571046	571124	571203	571281	571360	571438	571516	571595	57
50	50	11.571752	571831	571909	571988	572066	572145	572223	572302	572381	57
28	0	11.572538	572617	572695	572774	572853	572931	573010	573089	573168	57
10	10	11.573325	573404	573483	573562	573640	573719	573798	573877	573956	57
20	20	11.574114	574193	574272	574351	574430	574509	574588	574667	574746	57
30	30	11.574904	574983	575062	575141	575220	575300	575379	575458	575537	57
40	40	11.575696	575775	575854	575933	576013	576092	576171	576251	576330	57
50	50	11.576489	576568	576647	576727	576806	576886	576965	577045	577124	57
29	0	11.577283	577363	577442	577522	577601	577681	577761	577840	577920	57
10	10	11.578079	578159	578238	578318	578398	578478	578557	578637	578717	57
20	20	11.578877	578956	579036	579116	579196	579276	579356	579436	579516	57
30	30	11.579675	579755	579835	579915	579995	580075	580155	580236	580316	57
40	40	11.580476	580556	580636	580716	580796	580877	580957	581037	581117	58
50	50	11.581278	581358	581438	581518	581599	581679	581759	581840	581920	58
Minutes	Seconds	10'	9'	8'	7'	6'	5'	4'	3'	2'	
Co-secant of 1 degree, or Secant of 91 degrees.											

LOGARITHMIC SECANTS.

Secant of 88 degrees, or Co-secant of 178 degrees.										Seconds
1'	2'	3'	4'	5'	6'	7'	8'	9'		Minutes
582161	582242	582322	582403	582483	582564	582644	582725	582805		50
582966	583047	583127	583208	583289	583369	583450	583531	583611		40
583773	583853	583934	584015	584096	584177	584257	584338	584419		30
584581	584662	584742	584823	584904	584985	585066	585147	585228		20
585390	585471	585552	585633	585714	585795	585877	585958	586039		10
586201	586282	586364	586445	586526	586607	586688	586770	586851	0 29	
587014	587095	587176	587258	587339	587420	587502	587583	587665		50
587828	587909	587991	588072	588154	588235	588317	588398	588480		40
588643	588725	588807	588888	588970	589052	589133	589215	589297		30
589460	589542	589624	589706	589788	589869	589951	590033	590115		20
590279	590361	590443	590525	590607	590689	590771	590853	590935		10
591099	591181	591263	591345	591428	591510	591592	591674	591756	0 28	
591921	592003	592085	592168	592250	592332	592415	592497	592579		50
592744	592827	592909	592991	593074	593156	593239	593321	593404		40
593569	593652	593734	593817	593899	593982	594065	594147	594230		30
594395	594478	594561	594644	594726	594809	594892	594975	595058		20
595223	595306	595389	595472	595555	595638	595721	595804	595887		10
596053	596136	596219	596302	596385	596468	596551	596635	596718	0 27	
596884	596967	597051	597134	597217	597300	597384	597467	597550		50
597717	597800	597884	597967	598050	598134	598217	598301	598384		40
598551	598635	598718	598802	598885	598969	599053	599136	599220		30
599387	599471	599555	599638	599722	599806	599890	599973	600057		20
600225	600309	600393	600476	600560	600644	600728	600812	600896		10
601064	601148	601232	601316	601400	601484	601568	601652	601737	0 26	
601905	601989	602073	602157	602242	602326	602410	602494	602579		50
602747	602832	602916	603000	603085	603169	603254	603338	603423		40
603591	603676	603760	603845	603929	604014	604099	604183	604268		30
604437	604522	604606	604691	604776	604861	604945	605030	605115		20
605285	605369	605454	605539	605624	605709	605794	605879	605964		10
606134	606219	606304	606389	606474	606559	606644	606729	606814	0 25	
606984	607069	607155	607240	607325	607410	607496	607581	607666		50
607837	607922	608007	608093	608178	608264	608349	608434	608520		40
608691	608776	608862	608947	609033	609118	609204	609290	609375		30
609547	609632	609718	609804	609889	609975	610061	610147	610232		20
610404	610490	610576	610662	610747	610833	610919	611005	611091		10
611263	611349	611435	611521	611607	611693	611779	611865	611952	0 24	
612124	612210	612296	612383	612469	612555	612641	612728	612814		50
612986	613073	613159	613246	613332	613418	613505	613591	613678		40
613851	613937	614024	614110	614197	614284	614370	614457	614543		30
614717	614803	614890	614977	615064	615150	615237	615324	615411		20
615584	615671	615758	615845	615932	616019	616106	616193	616280		10
616454	616541	616628	616715	616802	616889	616976	617064	617151	0 23	
617325	617412	617500	617587	617674	617761	617849	617936	618023		50
618198	618285	618373	618460	618548	618635	618723	618810	618898		40
619073	619160	619248	619336	619423	619511	619598	619686	619774		30
619949	620037	620125	620213	620300	620388	620476	620564	620652		20
620828	620915	621003	621091	621179	621267	621355	621443	621531		10
621708	621796	621884	621972	622060	622148	622236	622325	622413	0 22	
622589	622678	622766	622854	622943	623031	623119	623208	623296		50
623473	623562	623650	623738	623827	623916	624004	624093	624181		40
624358	624447	624536	624624	624713	624802	624891	624979	625068		30
625246	625335	625423	625512	625601	625690	625779	625868	625957		20
626135	626224	626313	626402	626491	626580	626669	626758	626847		10
627026	627115	627204	627293	627383	627472	627561	627650	627740	0 21	
627918	628008	628097	628187	628276	628365	628455	628544	628634		50
628813	628902	628992	629082	629171	629261	629351	629440	629530		40
629709	629799	629889	629979	630068	630158	630248	630338	630428		30
630608	630697	630787	630877	630967	631057	631147	631237	631327		20
631508	631598	631688	631778	631868	631958	632049	632139	632229		10
632410	632500	632590	632681	632771	632861	632952	633042	633133	0 20	
9'	8'	7'	6'	5'	4'	3'	2'	1'		Seconds
Co-secant of 1 degree, or Secant of 91 degrees.										Minutes

TABLE XXXV.

LOGARITHMIC SECANTS.

		Secant of 88 degrees, or Co-secant of 178 degrees.								
Minutes	Seconds	0"	1"	2"	3"	4"	5"	6"	7"	8"
40	0	11. 633223	633314	633404	633495	633585	633676	633766	633857	633947
	10	11. 634129	634219	634310	634401	634491	634582	634673	634764	634854
	20	11. 635036	635127	635218	635309	635400	635490	635581	635672	635763
	30	11. 635945	636036	636128	636219	636310	636401	636492	636583	636674
	40	11. 636857	636948	637039	637130	637222	637313	637404	637496	637587
	50	11. 637770	637861	637953	638044	638136	638227	638319	638410	638502
41	0	11. 638685	638777	638868	638960	639052	639143	639235	639327	639418
	10	11. 639602	639694	639786	639877	639969	640061	640153	640245	640337
	20	11. 640521	640613	640705	640797	640889	640981	641073	641165	641258
	30	11. 641442	641534	641626	641719	641811	641903	641995	642088	642180
	40	11. 642305	642457	642550	642642	642735	642827	642919	643012	643105
	50	11. 643206	643382	643475	643568	643660	643753	643846	643938	644031
42	0	11. 644216	644309	644402	644495	644588	644681	644774	644866	644959
	10	11. 645145	645238	645331	645424	645517	645610	645704	645797	645890
	20	11. 646076	646169	646263	646356	646449	646542	646636	646729	646822
	30	11. 647009	647102	647196	647289	647383	647476	647570	647663	647757
	40	11. 647944	648037	648131	648225	648318	648412	648506	648599	648693
	50	11. 648881	648974	649068	649162	649256	649350	649444	649538	649631
43	0	11. 649819	649913	650007	650101	650196	650290	650384	650478	650572
	10	11. 650760	650855	650949	651043	651137	651232	651326	651420	651515
	20	11. 651703	651798	651892	651987	652081	652175	652270	652365	652459
	30	11. 652648	652743	652837	652932	653027	653122	653216	653311	653406
	40	11. 653595	653690	653785	653880	653975	654070	654165	654259	654354
	50	11. 654544	654639	654734	654830	654925	655020	655115	655210	655305
44	0	11. 655496	655591	655686	655781	655877	655972	656067	656163	656258
	10	11. 656449	656544	656640	656735	656831	656926	657022	657117	657213
	20	11. 657402	657500	657596	657691	657787	657883	657979	658074	658170
	30	11. 658364	658458	658554	658649	658745	658841	658937	659033	659129
	40	11. 659323	659417	659514	659610	659706	659802	659898	659994	660091
	50	11. 660283	660379	660476	660572	660668	660765	660861	660958	661054
45	0	11. 661247	661344	661440	661537	661633	661730	661826	661923	662020
	10	11. 662213	662310	662407	662503	662600	662697	662794	662891	662987
	20	11. 663181	663278	663375	663472	663569	663666	663763	663860	663957
	30	11. 664152	664249	664346	664443	664540	664638	664735	664832	664929
	40	11. 665124	665221	665319	665416	665514	665611	665709	665806	665904
	50	11. 666099	666196	666294	666392	666489	666587	666685	666782	666880
46	0	11. 667076	667173	667271	667369	667467	667565	667663	667761	667859
	10	11. 668055	668153	668251	668349	668447	668545	668643	668741	668839
	20	11. 669036	669134	669233	669331	669429	669528	669626	669724	669823
	30	11. 670020	670118	670217	670315	670414	670512	670611	670709	670808
	40	11. 671005	671104	671203	671302	671400	671499	671598	671697	671796
	50	11. 671993	672092	672191	672290	672389	672488	672587	672686	672785
47	0	11. 672984	673083	673182	673281	673380	673480	673579	673678	673777
	10	11. 673976	674075	674175	674274	674373	674473	674573	674672	674772
	20	11. 674971	675071	675170	675270	675369	675469	675569	675669	675768
	30	11. 675968	676068	676168	676268	676367	676467	676567	676667	676767
	40	11. 676967	677067	677168	677268	677368	677468	677568	677668	677769
	50	11. 677969	678069	678170	678270	678370	678471	678571	678672	678772
48	0	11. 678973	679074	679174	679275	679375	679476	679577	679677	679778
	10	11. 679979	680080	680181	680282	680383	680483	680584	680685	680786
	20	11. 680988	681089	681190	681291	681392	681493	681594	681696	681797
	30	11. 681999	682100	682202	682303	682404	682505	682607	682708	682810
	40	11. 683012	683114	683215	683317	683418	683520	683622	683723	683825
	50	11. 684028	684130	684233	684333	684435	684537	684639	684741	684843
49	0	11. 685048	685148	685250	685352	685454	685556	685658	685760	685863
	10	11. 686067	686169	686271	686374	686476	686578	686680	686783	686885
	20	11. 687090	687192	687295	687397	687500	687602	687705	687807	687910
	30	11. 688115	688218	688321	688424	688526	688629	688732	688834	688937
	40	11. 689143	689246	689349	689452	689555	689658	689761	689864	689967
	50	11. 690173	690276	690379	690483	690586	690689	690792	690896	690999
		10"	9"	8"	7"	6"	5"	4"	3"	2"
Minutes	Seconds	Co-secant of 1 degree, or Secant of 91 degrees.								

LOGARITHMIC SECANTS.

Secant of 88 degrees, or Co-secant of 178 degrees.										Seconds
0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	Minutes
11. 691206	691309	691413	691516	691620	691723	691827	691930	692034	692137	50
11. 692241	692345	692448	692552	692656	692759	692863	692967	693071	693175	40
11. 693279	693382	693486	693590	693694	693798	693902	694006	694110	694214	30
11. 694319	694423	694527	694631	694735	694840	694944	695048	695152	695257	20
11. 695361	695466	695570	695674	695779	695883	695988	696092	696197	696302	10
11. 696406	696511	696616	696720	696825	696930	697035	697139	697244	697349	0
11. 697454	697559	697664	697769	697874	697979	698084	698189	698294	698399	50
11. 698504	698609	698714	698820	698925	699030	699135	699241	699346	699451	40
11. 699557	699662	699768	699873	699979	700084	700190	700295	700401	700506	30
11. 700612	700718	700823	700929	701035	701141	701246	701352	701458	701564	20
11. 701670	701776	701882	701988	702094	702200	702306	702412	702518	702624	10
11. 702730	702836	702943	703049	703155	703261	703368	703474	703580	703687	0
11. 703793	703900	704006	704113	704219	704326	704432	704539	704646	704752	50
11. 704859	704966	705072	705179	705286	705393	705499	705606	705713	705820	40
11. 705927	706034	706141	706248	706355	706462	706569	706676	706784	706891	30
11. 706998	707105	707212	707320	707427	707534	707642	707749	707857	707964	20
11. 708071	708179	708287	708394	708502	708609	708717	708825	708932	709040	10
11. 709148	709255	709363	709471	709579	709687	709795	709903	710011	710119	0
11. 710227	710335	710443	710551	710659	710767	710875	710983	711092	711200	50
11. 711308	711416	711525	711633	711741	711850	711958	712067	712175	712284	40
11. 712392	712501	712609	712718	712827	712935	713044	713153	713262	713370	30
11. 713479	713588	713697	713806	713915	714024	714133	714242	714351	714460	20
11. 714569	714678	714787	714896	715006	715115	715224	715333	715443	715552	10
11. 715661	715771	715880	715990	716099	716209	716318	716428	716537	716647	0
11. 716757	716866	716976	717086	717195	717305	717415	717525	717635	717745	50
11. 717855	717964	718074	718184	718294	718405	718515	718625	718735	718845	40
11. 718955	719065	719176	719286	719396	719507	719617	719727	719838	719948	30
11. 720059	720169	720280	720390	720501	720612	720722	720833	720944	721054	20
11. 721165	721276	721387	721498	721608	721719	721830	721941	722052	722163	10
11. 722274	722385	722497	722608	722719	722830	722941	723052	723164	723275	0
11. 723386	723498	723609	723721	723832	723943	724055	724166	724278	724390	50
11. 724501	724613	724725	724836	724948	725060	725172	725283	725395	725507	40
11. 725619	725731	725843	725955	726067	726179	726291	726403	726515	726627	30
11. 726740	726852	726964	727076	727189	727301	727413	727526	727638	727751	20
11. 727863	727976	728088	728201	728313	728426	728539	728652	728764	728877	10
11. 728990	729102	729215	729328	729441	729554	729667	729780	729893	730006	0
11. 730119	730232	730345	730458	730572	730685	730798	730911	731025	731138	50
11. 731251	731365	731478	731592	731705	731819	731932	732046	732159	732273	40
11. 732387	732500	732614	732728	732841	732955	733069	733183	733297	733411	30
11. 733525	733639	733753	733867	733981	734095	734209	734323	734438	734552	20
11. 734666	734780	734895	735009	735123	735238	735352	735467	735581	735696	10
11. 735810	735925	736040	736154	736269	736384	736498	736613	736728	736843	0
11. 736958	737072	737187	737302	737417	737532	737647	737762	737878	737993	50
11. 738108	738223	738338	738454	738569	738684	738800	738915	739030	739146	40
11. 739261	739377	739492	739608	739724	739839	739955	740070	740186	740302	30
11. 740418	740534	740649	740765	740881	740997	741113	741229	741345	741461	20
11. 741577	741693	741810	741926	742042	742158	742274	742391	742507	742624	10
11. 742740	742856	742973	743089	743206	743322	743439	743556	743672	743789	0
11. 743906	744022	744139	744256	744373	744490	744607	744724	744841	744958	50
11. 745075	745192	745309	745426	745543	745660	745777	745895	746012	746129	40
11. 746247	746364	746481	746599	746716	746834	746951	747069	747187	747304	30
11. 747422	747540	747657	747775	747893	748011	748129	748246	748364	748482	20
11. 748600	748718	748836	748954	749073	749191	749309	749427	749545	749664	10
11. 749782	749900	750019	750137	750255	750374	750492	750611	750730	750848	0
11. 750967	751085	751204	751323	751442	751560	751679	751798	751917	752036	50
11. 752155	752274	752393	752512	752631	752750	752869	752988	753108	753227	40
11. 753346	753466	753585	753704	753824	753943	754063	754182	754302	754421	30
11. 754541	754661	754780	754900	755020	755139	755259	755379	755499	755619	20
11. 755739	755859	755979	756099	756219	756339	756459	756579	756699	756820	10
11. 756940	757060	757181	757301	757421	757542	757662	757783	757903	758024	0
10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	Seconds
Co-secant of 1 degree, or Secant of 91 degrees.										Minutes

LOGARITHMIC SECANTS.

Minutes Seconds		Secant of 89 degrees, or Co-secant of 179 degrees.									
		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"
0	0	11.758145	758265	758386	758507	758627	758748	758869	758990	759111	759232
10	10	11.759353	759474	759595	759716	759837	759958	760079	760200	760321	760442
20	20	11.760564	760685	760807	760928	761049	761171	761292	761414	761535	761656
30	30	11.761779	761900	762022	762144	762265	762387	762509	762631	762753	762874
40	40	11.762997	763119	763241	763363	763485	763607	763729	763851	763974	764095
50	50	11.764218	764341	764463	764585	764708	764830	764953	765075	765198	765319
1	0	11.765443	765566	765689	765811	765934	766057	766180	766303	766426	766548
10	10	11.766672	766795	766918	767041	767164	767287	767410	767534	767657	767779
20	20	11.767903	768027	768150	768274	768397	768521	768644	768768	768892	769015
30	30	11.769139	769263	769386	769510	769634	769758	769882	770006	770130	770254
40	40	11.770378	770502	770626	770750	770874	770999	771123	771247	771372	771496
50	50	11.771620	771745	771869	771994	772118	772243	772368	772492	772617	772741
2	0	11.772866	772991	773116	773241	773366	773491	773616	773741	773866	773991
10	10	11.774116	774241	774366	774492	774617	774742	774868	774993	775118	775243
20	20	11.775369	775495	775620	775746	775872	775997	776123	776249	776375	776500
30	30	11.776626	776752	776878	777004	777130	777256	777382	777508	777634	777760
40	40	11.777887	778013	778139	778266	778392	778518	778645	778771	778898	779024
50	50	11.779151	779278	779404	779531	779658	779784	779911	780038	780165	780291
3	0	11.780419	780546	780673	780800	780927	781054	781181	781309	781436	781563
10	10	11.781690	781818	781945	782073	782200	782328	782455	782583	782710	782838
20	20	11.782966	783094	783221	783349	783477	783605	783733	783861	783989	784117
30	30	11.784245	784373	784501	784629	784758	784886	785014	785143	785271	785399
40	40	11.785528	785656	785785	785913	786042	786171	786299	786428	786557	786686
50	50	11.786815	786943	787072	787201	787330	787459	787588	787717	787847	787975
4	0	11.788105	788234	788364	788493	788623	788752	788881	789011	789140	789269
10	10	11.789399	789529	789659	789788	789918	790048	790178	790308	790438	790567
20	20	11.790699	790828	790958	791088	791218	791348	791478	791609	791739	791868
30	30	11.792000	792130	792261	792391	792522	792652	792783	792914	793044	793174
40	40	11.793306	793437	793567	793698	793829	793960	794091	794222	794353	794483
50	50	11.794616	794747	794878	795009	795141	795272	795404	795535	795667	795797
5	0	11.795930	796061	796193	796325	796456	796588	796720	796852	796984	797115
10	10	11.797248	797380	797512	797644	797776	797908	798040	798173	798305	798437
20	20	11.798570	798702	798834	798967	799099	799232	799365	799497	799630	799762
30	30	11.799896	800028	800161	800294	800427	800560	800693	800826	800959	801091
40	40	11.801226	801359	801492	801625	801759	801892	802026	802159	802293	802425
50	50	11.802560	802693	802827	802961	803094	803228	803362	803496	803630	803763
6	0	11.803898	804032	804166	804300	804434	804569	804703	804837	804972	805105
10	10	11.805240	805375	805509	805644	805778	805913	806048	806183	806317	806451
20	20	11.806587	806722	806857	806992	807127	807262	807397	807532	807667	807801
30	30	11.807938	808073	808208	808344	808479	808615	808750	808886	809021	809156
40	40	11.809293	809428	809564	809700	809836	809972	810108	810244	810380	810515
50	50	11.810652	810788	810924	811060	811197	811333	811469	811606	811742	811878
7	0	11.812015	812152	812288	812425	812562	812699	812835	812972	813109	813245
10	10	11.813383	813520	813657	813794	813931	814068	814206	814343	814480	814617
20	20	11.814755	814892	815030	815167	815305	815443	815580	815718	815856	815993
30	30	11.816131	816269	816407	816545	816683	816821	816959	817098	817236	817374
40	40	11.817512	817651	817789	817927	818066	818204	818343	818481	818620	818758
50	50	11.818897	819036	819175	819314	819453	819592	819731	819870	820009	820147
8	0	11.820287	820426	820566	820705	820844	820984	821123	821262	821402	821541
10	10	11.821681	821821	821961	822100	822240	822380	822520	822660	822800	822939
20	20	11.823080	823220	823360	823500	823640	823781	823921	824061	824202	824341
30	30	11.824483	824623	824764	824905	825045	825186	825327	825468	825609	825749
40	40	11.825891	826032	826173	826314	826455	826596	826737	826879	827020	827161
50	50	11.827303	827444	827586	827727	827869	828011	828152	828294	828436	828577
9	0	11.828720	828862	829004	829146	829288	829430	829572	829714	829856	829998
10	10	11.830141	830283	830426	830568	830711	830854	830996	831139	831282	831424
20	20	11.831567	831710	831853	831996	832139	832282	832425	832568	832712	832854
30	30	11.832998	833141	833285	833428	833572	833715	833859	834002	834146	834289
40	40	11.834434	834577	834721	834865	835009	835153	835297	835441	835586	835730
50	50	11.835874	836018	836163	836307	836451	836596	836741	836885	837030	837174
Minutes Seconds		10"	9"	8"	7"	6"	5"	4"	3"	2"	1"
Co-secant of 0 degree, or Secant of 90 degrees.											

LOGARITHMIC SECANTS.

Secant of 89 degrees, or Co-secant of 179 degrees.										
	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'
11. 837319	837464	837609	837754	837899	838044	838189	838334	838479	838624	50
11. 838769	838914	839060	839205	839350	839496	839641	839787	839933	840078	40
11. 840224	840370	840515	840661	840807	840953	841099	841245	841391	841537	30
11. 841684	841830	841976	842123	842269	842415	842562	842708	842855	843002	20
11. 843148	843295	843442	843589	843736	843882	844029	844176	844324	844471	10
11. 844618	844765	844912	845060	845207	845355	845502	845650	845797	845945	0.49
11. 846092	846240	846388	846536	846684	846832	846980	847128	847276	847424	50
11. 847572	847720	847869	848017	848165	848314	848462	848611	848759	848908	40
11. 849057	849205	849354	849503	849652	849801	849950	850099	850248	850397	30
11. 850547	850696	850845	850994	851144	851293	851443	851592	851742	851892	20
11. 852041	852191	852341	852491	852641	852791	852941	853091	853241	853391	10
11. 853541	853692	853842	853992	854143	854293	854444	854595	854745	854896	0.48
11. 855047	855198	855348	855499	855650	855801	855952	856104	856255	856406	50
11. 856557	856709	856860	857011	857163	857314	857466	857618	857769	857921	40
11. 858073	858225	858377	858529	858681	858833	858985	859137	859289	859442	30
11. 859594	859746	859899	860051	860204	860357	860509	860662	860815	860968	20
11. 861120	861273	861426	861579	861733	861886	862039	862192	862345	862499	10
11. 862652	862806	862959	863113	863267	863420	863574	863728	863882	864036	0.47
11. 864190	864344	864498	864652	864806	864960	865114	865269	865423	865578	50
11. 865732	865887	866041	866196	866351	866506	866660	866815	866970	867125	40
11. 867280	867436	867591	867746	867901	868057	868212	868367	868523	868678	30
11. 868834	868990	869146	869301	869457	869613	869769	869925	870081	870237	20
11. 870393	870550	870706	870862	871019	871175	871332	871488	871645	871802	10
11. 871958	872115	872272	872429	872586	872743	872900	873057	873214	873372	0.46
11. 873529	873686	873844	874001	874159	874316	874474	874632	874790	874947	50
11. 875105	875263	875421	875579	875737	875896	876054	876212	876370	876529	40
11. 876687	876846	877004	877163	877322	877480	877639	877798	877957	878116	30
11. 878275	878434	878593	878753	878912	879071	879231	879390	879550	879709	20
11. 879869	880028	880188	880348	880508	880668	880828	880988	881148	881308	10
11. 881468	881629	881789	881949	882110	882270	882431	882591	882752	882913	0.45
11. 883074	883235	883396	883557	883718	883879	884040	884201	884362	884524	50
11. 884685	884847	885008	885170	885331	885493	885655	885817	885979	886140	40
11. 886303	886465	886627	886789	886951	887113	887276	887438	887601	887763	30
11. 887926	888089	888251	888414	888577	888740	888903	889066	889229	889392	20
11. 889555	889719	889882	890046	890209	890373	890536	890700	890864	891027	10
11. 891191	891355	891519	891683	891847	892011	892176	892340	892504	892669	0.44
11. 892833	892998	893162	893327	893491	893656	893821	893986	894151	894316	50
11. 894481	894646	894811	894977	895142	895307	895473	895638	895804	895970	40
11. 896135	896301	896467	896633	896799	896965	897131	897297	897464	897630	30
11. 897796	897963	898129	898296	898462	898629	898796	898962	899129	899296	20
11. 899463	899630	899797	899965	900132	900299	900467	900634	900802	900969	10
11. 901137	901304	901472	901640	901808	901976	902144	902312	902480	902648	0.43
11. 902817	902985	903153	903322	903491	903659	903828	903997	904165	904334	50
11. 904503	904672	904841	905010	905180	905349	905518	905688	905857	906027	40
11. 906196	906366	906536	906705	906875	907045	907215	907385	907555	907726	30
11. 907926	908096	908266	908437	908607	908778	908949	909119	909290	909461	20
11. 909602	909773	909944	910116	910287	910458	910629	910801	910972	911144	10
11. 911315	911487	911659	911831	912003	912175	912347	912519	912691	912863	0.42
11. 913035	913208	913380	913553	913725	913898	914071	914243	914416	914589	50
11. 914762	914935	915108	915281	915455	915628	915801	915975	916148	916322	40
11. 916496	916669	916843	917017	917191	917365	917539	917713	917888	918062	30
11. 918236	918411	918585	918760	918934	919109	919284	919459	919634	919809	20
11. 919984	920159	920334	920510	920685	920860	921036	921211	921387	921563	10
11. 921739	921914	922090	922266	922442	922618	922795	922971	923147	923324	0.41
11. 923500	923677	923853	924030	924207	924384	924561	924738	924915	925092	50
11. 925269	925447	925624	925801	925979	926156	926334	926512	926690	926867	40
11. 927045	927223	927401	927580	927758	927936	928115	928293	928472	928650	30
11. 928829	929008	929186	929365	929544	929723	929902	930082	930261	930440	20
11. 930620	930799	930978	931158	931338	931518	931698	931878	932058	932238	10
11. 932418	932598	932778	932959	933139	933320	933500	933681	933862	934043	0.40
	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'
Co-secant of 0 degree, or Secant of 90 degrees.										

LOGARITHMIC SECANTS.

		Secant of 89 degrees, or Co-secant of 179 degrees.									
Minutes	Seconds	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"
20	0	11.934224	934405	934586	934767	934948	935129	935311	935492	935674	935855
	10	11.936037	936219	936400	936582	936764	936946	937129	937311	937493	937675
	20	11.937858	938040	938223	938406	938588	938771	938954	939137	939320	939502
	30	11.939686	939870	940053	940236	940420	940603	940787	940971	941155	941338
	40	11.941523	941707	941891	942075	942259	942444	942628	942813	942997	943181
	50	11.943367	943551	943736	943921	944106	944292	944477	944662	944848	945033
21	0	11.945219	945404	945590	945776	945962	946147	946333	946520	946706	946892
	10	11.947078	947265	947451	947638	947825	948011	948198	948385	948572	948759
	20	11.948946	949133	949321	949508	949696	949883	950071	950259	950446	950633
	30	11.950822	951010	951198	951387	951575	951763	951952	952140	952329	952517
	40	11.952706	952895	953084	953273	953462	953651	953841	954030	954219	954408
	50	11.954599	954788	954978	955168	955358	955548	955738	955928	956118	956308
22	0	11.956499	956690	956880	957071	957262	957452	957643	957834	958026	958217
	10	11.958408	958599	958791	958982	959174	959366	959557	959749	959941	960133
	20	11.960325	960518	960710	960902	961095	961287	961480	961673	961865	962058
	30	11.962251	962444	962637	962831	963024	963217	963411	963604	963798	963991
	40	11.964186	964380	964574	964768	964962	965156	965350	965545	965739	965933
	50	11.966129	966323	966518	966713	966908	967103	967299	967494	967689	967884
23	0	11.968080	968276	968472	968668	968864	969060	969256	969452	969648	969844
	10	11.970041	970238	970434	970631	970828	971025	971222	971419	971616	971812
	20	11.972011	972208	972406	972603	972801	972999	973197	973395	973593	973791
	30	11.973989	974187	974386	974584	974783	974982	975181	975379	975578	975776
	40	11.975977	976176	976375	976575	976774	976974	977174	977373	977573	977772
	50	11.977973	978174	978374	978574	978775	978975	979176	979377	979577	979777
24	0	11.979979	980180	980382	980583	980784	980986	981187	981389	981591	981793
	10	11.981994	982197	982399	982601	982803	983006	983208	983411	983613	983816
	20	11.984019	984222	984425	984628	984832	985035	985238	985442	985646	985849
	30	11.986053	986257	986461	986665	986870	987074	987278	987483	987687	987891
	40	11.988097	988302	988507	988712	988917	989122	989328	989533	989739	989944
	50	11.990150	990356	990562	990768	990974	991181	991387	991593	991800	992007
25	0	11.992213	992420	992627	992834	993041	993249	993456	993663	993871	994078
	10	11.994286	994494	994702	994910	995118	995326	995535	995743	995952	996160
	20	11.996369	996578	996787	996996	997205	997414	997624	997833	998043	998252
	30	11.998462	998672	998882	999092	999302	999512	999723	999933	1000144	1000354
	40	12.000565	000776	000987	001198	001409	001620	001832	002043	002255	002467
	50	12.002678	002890	003102	003314	003527	003739	003951	004164	004376	004589
26	0	12.004802	005015	005228	005441	005654	005868	006081	006295	006508	006722
	10	12.006936	007150	007364	007578	007793	008007	008222	008436	008651	008866
	20	12.009081	009296	009511	009726	009941	010157	010373	010588	010804	011020
	30	12.011236	011452	011668	011885	012101	012318	012534	012751	012968	013185
	40	12.013402	013619	013836	014054	014271	014489	014707	014925	015143	015361
	50	12.015579	015797	016015	016234	016453	016671	016890	017109	017328	017547
27	0	12.017767	017986	018205	018425	018645	018865	019085	019305	019525	019745
	10	12.019965	020186	020407	020627	020848	021069	021290	021511	021733	021954
	20	12.022176	022397	022619	022841	023063	023285	023507	023729	023952	024174
	30	12.024397	024620	024843	025066	025289	025512	025735	025959	026182	026406
	40	12.026630	026854	027078	027302	027526	027750	027975	028200	028424	028649
	50	12.028874	029099	029324	029550	029775	030001	030226	030452	030678	030904
28	0	12.031130	031356	031583	031809	032036	032263	032489	032716	032943	033171
	10	12.033398	033625	033853	034081	034308	034536	034764	034992	035221	035449
	20	12.035678	035906	036135	036364	036593	036822	037051	037281	037510	037740
	30	12.037969	038199	038429	038659	038889	039120	039350	039581	039811	040042
	40	12.040273	040504	040735	040967	041198	041430	041661	041893	042125	042357
	50	12.042589	042822	043054	043287	043519	043752	043985	044218	044451	044685
29	0	12.044918	045152	045385	045619	045853	046087	046321	046556	046790	047024
	10	12.047259	047494	047729	047964	048199	048435	048670	048906	049141	049377
	20	12.049613	049849	050085	050322	050558	050795	051031	051268	051505	051742
	30	12.051980	052217	052455	052692	052930	053168	053406	053644	053882	054121
	40	12.054359	054598	054837	055076	055315	055554	055793	056033	056272	056512
	50	12.056752	056992	057232	057472	057713	057953	058194	058435	058676	058917
Minutes	Seconds	10"	9"	8"	7"	6"	5"	4"	3"	2"	1"
Co-secant of 0 degree, or Secant of 90 degrees.											

LOGARITHMIC SECANTS.

Secant of 89 degrees, or Co-secant of 179 degrees.										Seconds	Minutes
0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
12.059158	059399	059641	059882	060124	060366	060608	060850	061093	061335	50	
12.061578	061820	062063	062306	062549	062792	063036	063279	063523	063767	40	
12.064010	064255	064499	064743	064987	065232	065477	065722	065967	066212	30	
12.066457	066703	066948	067194	067440	067686	067932	068178	068424	068671	20	
12.068918	069165	069411	069659	069906	070153	070401	070648	070896	071144	10	
12.071392	071640	071889	072137	072386	072635	072884	073133	073382	073631	0	29
12.073881	074131	074380	074630	074880	075131	075381	075632	075882	076133	50	
12.076384	076635	076886	077138	077389	077641	077893	078145	078397	078649	40	
12.078902	079154	079407	079660	079913	080166	080419	080673	080926	081180	30	
12.081434	081688	081942	082197	082451	082706	082960	083215	083470	083726	20	
12.083981	084237	084492	084748	085004	085260	085517	085773	086030	086286	10	
12.086543	086800	087057	087315	087572	087830	088088	088346	088604	088862	0	28
12.089121	089379	089638	089897	090156	090415	090674	090934	091194	091453	50	
12.091713	091973	092234	092494	092755	093016	093277	093538	093799	094060	40	
12.094322	094583	094845	095107	095369	095632	095894	096157	096420	096683	30	
12.096946	097209	097473	097736	098000	098264	098528	098792	099057	099321	20	
12.099586	099851	100116	100381	100646	100912	101178	101443	101709	101976	10	
12.102242	102509	102775	103042	103309	103576	103844	104111	104379	104647	0	27
12.104915	105183	105451	105720	105988	106257	106526	106795	107064	107334	50	
12.107604	107873	108143	108414	108684	108954	109225	109496	109767	110038	40	
12.110309	110581	110853	111125	111397	111669	111941	112214	112486	112759	30	
12.113032	113305	113579	113852	114126	114400	114674	114948	115223	115497	20	
12.115772	116047	116322	116598	116873	117149	117425	117701	117977	118253	10	
12.118530	118806	119083	119360	119637	119915	120192	120470	120748	121026	0	26
12.121305	121583	121862	122141	122420	122699	122978	123258	123537	123817	50	
12.124097	124378	124658	124939	125220	125501	125782	126063	126345	126626	40	
12.126908	127190	127473	127755	128038	128321	128604	128887	129170	129454	30	
12.129738	130022	130306	130590	130875	131159	131444	131729	132014	132300	20	
12.132585	132871	133157	133443	133730	134016	134303	134590	134877	135165	10	
12.135452	135740	136028	136316	136604	136892	137181	137470	137759	138048	0	25
12.138338	138627	138917	139207	139497	139788	140078	140369	140660	140951	50	
12.141243	141534	141826	142118	142410	142702	142995	143288	143581	143874	40	
12.144167	144461	144754	145048	145342	145637	145931	146226	146521	146816	30	
12.147111	147407	147703	147999	148295	148591	148888	149184	149481	149778	20	
12.150076	150373	150671	150969	151267	151566	151864	152163	152462	152761	10	
12.153061	153360	153660	153960	154260	154561	154861	155162	155463	155765	0	24
12.156066	156368	156670	156972	157274	157577	157879	158182	158486	158789	50	
12.159093	159396	159700	160005	160309	160614	160919	161224	161529	161834	40	
12.162140	162446	162752	163059	163365	163672	163979	164286	164594	164901	30	
12.165209	165517	165826	166134	166443	166752	167061	167371	167680	167990	20	
12.168300	168611	168921	169232	169543	169854	170166	170477	170789	171101	10	
12.171414	171726	172039	172352	172665	172979	173292	173606	173920	174235	0	23
12.174549	174864	175179	175494	175810	176126	176442	176758	177074	177391	50	
12.177708	178025	178342	178660	178978	179296	179614	179932	180251	180570	40	
12.180889	181209	181528	181848	182169	182489	182810	183130	183452	183773	30	
12.184094	184416	184738	185061	185383	185706	186029	186352	186676	186999	20	
12.187323	187648	187972	188297	188622	188947	189272	189598	189924	190250	10	
12.190576	190903	191230	191557	191885	192212	192540	192868	193197	193525	0	22
12.193854	194183	194513	194842	195172	195502	195833	196163	196494	196825	50	
12.197157	197488	197820	198152	198485	198817	199150	199484	199817	200151	40	
12.200485	200819	201153	201488	201823	202158	202494	202829	203165	203502	30	
12.203838	204175	204512	204849	205187	205525	205863	206201	206540	206879	20	
12.207218	207557	207897	208237	208577	208918	209258	209599	209941	210282	10	
12.210624	210966	211309	211651	211994	212337	212681	213024	213368	213713	0	21
12.214057	214402	214747	215092	215438	215784	216130	216477	216823	217170	50	
12.217518	217865	218213	218561	218910	219258	219607	219957	220306	220656	40	
12.221006	221356	221707	222058	222409	222761	223113	223465	223817	224170	30	
12.224523	224876	225229	225583	225937	226292	226646	227001	227356	227712	20	
12.228068	228424	228780	229137	229494	229851	230209	230567	230925	231283	10	
12.231642	232001	232361	232720	233080	233441	233801	234162	234523	234885	0	20
10"	9"	8"	7"	6"	5"	4"	3"	2"	1"	Seconds	Minutes
Co-secant of 0 degree, or Secant of 90 degrees.											

LOGARITHMIC SECANTS.

		Secant of 89 degrees, or Co-secant of 179 degrees.									
		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'
40	0	12. 235246	235698	235971	236333	236696	237060	237423	237787	238151	238516
10	10	12. 238881	239246	239611	239977	240343	240709	241076	241443	241810	242178
20	20	12. 242545	242914	243282	243651	244020	244390	244759	245129	245500	245871
30	30	12. 246242	246613	246985	247357	247729	248101	248474	248848	249221	249595
40	40	12. 249969	250344	250719	251094	251470	251845	252222	252598	252975	253352
50	50	12. 253729	254107	254485	254864	255243	255622	256001	256381	256761	257142
41	0	12. 257523	257904	258285	258667	259049	259431	259814	260197	260581	260965
10	10	12. 261349	261733	262118	262503	262889	263275	263661	264047	264434	264822
20	20	12. 265209	265597	265985	266374	266763	267152	267542	267932	268322	268713
30	30	12. 269104	269496	269888	270280	270672	271065	271458	271852	272246	272640
40	40	12. 273034	273429	273825	274221	274617	275013	275410	275807	276204	276602
50	50	12. 277001	277399	277798	278198	278597	278997	279398	279799	280200	280601
42	0	12. 281003	281406	281808	282211	282615	283019	283423	283827	284232	284638
10	10	12. 285043	285449	285856	286263	286670	287077	287485	287894	288303	288712
20	20	12. 289121	289531	289941	290352	290763	291175	291586	291999	292411	292824
30	30	12. 293238	293651	294066	294480	294895	295311	295726	296143	296559	296976
40	40	12. 297394	297811	298230	298648	299067	299487	299906	300327	300747	301168
50	50	12. 301590	302012	302434	302856	303280	303703	304127	304551	304976	305401
43	0	12. 305827	306253	306679	307106	307533	307961	308389	308817	309246	309676
10	10	12. 310105	310536	310966	311397	311829	312261	312693	313126	313559	313993
20	20	12. 314427	314861	315296	315732	316167	316604	317040	317478	317915	318353
30	30	12. 318792	319230	319670	320110	320550	320991	321432	321873	322315	322758
40	40	12. 323201	323644	324088	324532	324977	325422	325868	326314	326760	327207
50	50	12. 327655	328103	328551	329000	329450	329899	330350	330800	331252	331703
44	0	12. 332155	332608	333061	333515	333969	334423	334878	335334	335790	336246
10	10	12. 336703	337160	337618	338077	338535	338995	339455	339915	340376	340837
20	20	12. 341299	341761	342224	342687	343151	343615	344080	344545	345011	345477
30	30	12. 345944	346411	346879	347347	347816	348285	348755	349225	349696	350167
40	40	12. 350639	351111	351584	352057	352531	353005	353480	353956	354432	354908
50	50	12. 355385	355863	356341	356819	357298	357778	358258	358739	359220	359702
45	0	12. 360184	360667	361150	361634	362118	362603	363089	363575	364062	364549
10	10	12. 365036	365525	366014	366503	366993	367483	367974	368466	368958	369450
20	20	12. 369944	370438	370932	371427	371922	372418	372915	373412	373910	374408
30	30	12. 374907	375407	375907	376407	376908	377410	377913	378416	378919	379423
40	40	12. 379928	380433	380939	381446	381953	382460	382968	383477	383987	384497
50	50	12. 385007	385519	386030	386543	387056	387570	388084	388599	389114	389630
46	0	12. 390147	390664	391182	391701	392220	392740	393260	393781	394303	394825
10	10	12. 395348	395872	396396	396921	397446	397972	398499	399026	399554	400083
20	20	12. 400612	401142	401673	402204	402736	403269	403802	404336	404870	405405
30	30	12. 405941	406478	407015	407553	408091	408630	409170	409711	410252	410794
40	40	12. 411336	411879	412423	412968	413513	414059	414606	415153	415701	416250
50	50	12. 416799	417349	417900	418451	419004	419556	420110	420664	421219	421775
47	0	12. 422332	422889	423447	424005	424564	425124	425685	426247	426809	427372
10	10	12. 427935	428500	429065	429631	430197	430765	431333	431902	432471	433041
20	20	12. 433612	434184	434757	435330	435904	436479	437055	437631	438208	438786
30	30	12. 439365	439944	440524	441105	441687	442270	442853	443437	444022	444608
40	40	12. 445194	445782	446370	446959	447548	448139	448730	449322	449915	450509
50	50	12. 451103	451698	452295	452892	453489	454088	454688	455288	455889	456491
48	0	12. 457093	457697	458302	458907	459513	460120	460728	461336	461946	462556
10	10	12. 463168	463780	464393	465007	465621	466237	466853	467471	468089	468708
20	20	12. 469328	469949	470570	471193	471817	472441	473066	473693	474320	474948
30	30	12. 475577	476207	476837	477469	478102	478735	479370	480005	480642	481279
40	40	12. 481917	482556	483196	483837	484479	485122	485766	486411	487057	487703
50	50	12. 488351	489000	489649	490300	490952	491604	492258	492912	493568	494224
49	0	12. 494882	495540	496200	496861	497522	498185	498848	499513	500178	500845
10	10	12. 501512	502181	502851	503522	504193	504866	505540	506215	506891	507568
20	20	12. 508246	508925	509605	510286	510969	511652	512337	513022	513709	514396
30	30	12. 515085	515775	516466	517158	517851	518546	519241	519938	520635	521334
40	40	12. 522034	522735	523437	524141	524845	525551	526257	526965	527674	528385
50	50	12. 529096	529808	530522	531237	531953	532670	533389	534108	534829	535551
		10'	9'	8'	7'	6'	5'	4'	3'	2'	1'
		Co-secant of 0 degree, or Secant of 90 degrees.									

LOGARITHMIC SECANTS.

Secant of 89 degrees, or Co-secant of 179 degrees.										Seconds	Minutes
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°		
12. 536274	536999	537725	538451	539179	539909	540639	541371	542104	542838	50	
12. 543574	544310	545048	545788	546528	547270	548013	548757	549503	550250	40	
12. 550998	551747	552498	553250	554003	554758	555514	556271	557030	557790	30	
12. 558551	559313	560077	560843	561609	562377	563147	563917	564689	565463	20	
12. 566238	567014	567791	568570	569351	570133	570916	571700	572487	573274	10	
12. 574063	574853	575645	576438	577233	578029	578827	579626	580426	581228	0	9
12. 582032	582837	583643	584451	585261	586072	586884	587698	588514	589331	50	
12. 590150	590970	591792	592615	593440	594266	595094	595924	596755	597588	40	
12. 598422	599258	600096	600935	601776	602618	603462	604308	605156	606005	30	
12. 606855	607708	608562	609418	610275	611134	611995	612858	613722	614588	20	
12. 615456	616325	617196	618069	618944	619820	620699	621579	622460	623344	10	
12. 624229	625117	626006	626897	627789	628684	629580	630478	631378	632280	0	8
12. 633184	634090	634998	635907	636819	637732	638647	639564	640483	641405	50	
12. 642328	643253	644180	645109	646040	646972	647907	648844	649783	650725	40	
12. 651668	652613	653560	654509	655461	656414	657370	658327	659287	660249	30	
12. 661213	662179	663147	664118	665091	666065	667042	668022	669003	669987	20	
12. 670973	671961	672951	673944	674939	675936	676936	677938	678942	679948	10	
12. 680957	681968	682982	683998	685016	686036	687060	688085	689113	690143	0	7
12. 691176	692211	693249	694289	695332	696377	697425	698475	699528	700584	50	
12. 701642	702702	703765	704831	705899	706970	708044	709120	710199	711281	40	
12. 712305	713452	714542	715635	716730	717828	718929	720033	721139	722249	30	
12. 723361	724476	725594	726714	727838	728965	730094	731227	732362	733500	20	
12. 734642	735786	736934	738084	739237	740394	741554	742716	743882	745051	10	
12. 746224	747399	748577	749759	750944	752132	753324	754519	755717	756918	0	6
12. 758123	759331	760542	761757	762975	764197	765422	766651	767883	769118	50	
12. 770357	771600	772846	774096	775349	776606	777867	779131	780399	781671	40	
12. 782946	784226	785509	786795	788086	789380	790679	791981	793287	794597	30	
12. 795911	797229	798551	799878	801208	802542	803880	805223	806569	807920	20	
12. 809275	810635	811998	813366	814738	816115	817496	818881	820271	821665	10	
12. 823064	824467	825875	827287	828704	830125	831552	832983	834418	835859	0	5
12. 837304	838757	840209	841669	843134	844603	846078	847558	849042	850532	50	
12. 852027	853524	855033	856543	858059	859580	861107	862639	864176	865719	40	
12. 867267	868821	870380	871945	873516	875093	876675	878263	879856	881456	30	
12. 883061	884673	886290	887914	889544	891179	892821	894469	896124	897785	20	
12. 899452	901125	902805	904492	906185	907885	909591	911305	913025	914751	10	
12. 916485	918226	919974	921728	923490	925259	927035	928819	930610	932408	0	4
12. 934214	936007	937848	939677	941513	943357	945209	947069	948937	950813	50	
12. 952697	954590	956490	958399	960317	962243	964177	966120	968072	970033	40	
12. 972002	973981	975969	977965	979971	981987	984011	986046	988089	990143	30	
12. 992206	994279	996362	998455	1000558	1002671	1004795	1006929	1009074	1011229	20	
13. 013395	015572	017760	019959	022169	024391	026623	028868	031124	033392	10	
13. 035672	037963	040267	042584	044912	047253	049607	051974	054354	056747	0	3
13. 059153	061572	064005	066452	068912	071387	073876	076379	078897	081429	50	
13. 083976	086538	089116	091709	094317	096941	099581	102238	104910	107599	40	
13. 110305	113028	115768	118525	121301	124093	126904	129734	132582	135448	30	
13. 138334	141239	144163	147108	150072	153057	156063	159089	162137	165206	20	
13. 168297	171410	174546	177705	180886	184091	187320	190573	193851	197154	10	
13. 200482	203835	207215	210621	214055	217515	221003	224520	228065	231640	0	2
13. 235244	238878	242543	246239	249967	253727	257520	261347	265207	269102	50	
13. 273032	276999	281001	285041	289119	293236	297392	301588	305825	310104	40	
13. 314425	318790	323199	327653	332154	336701	341297	345942	350637	355384	30	
13. 360183	365035	369942	374906	379927	385006	390146	395347	400611	405940	20	
13. 411335	416798	422330	427934	433612	439364	445193	451102	457093	463167	10	
13. 469327	475576	481916	488350	494881	501512	508245	515085	522033	529095	0	1
13. 536274	543573	550997	558550	566237	574062	582031	590149	598422	606855	50	
13. 615455	624229	633184	642327	651667	661213	670972	680957	691176	701641	40	
13. 712365	723360	734641	746223	758123	770357	782946	795911	809275	823063	30	
13. 837304	852027	867267	883061	899452	916485	934214	952697	972002	992206	20	
14. 013395	029153	045953	063976	110305	138334	168297	200482	235244	273032	10	
14. 314425	360183	411335	469327	536274	615455	712365	837304	992206	314425	0	0
10°	9°	8°	7°	6°	5°	4°	3°	2°	1°	Seconds	Minutes
Co-secant of 0 degree, or Secant of 90 degrees.											

LOGARITHMIC SINES.

Minutes		Sine of 0 degree, or Co-sine of 90 degrees.									
Minutes	Seconds	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°
0	0	0.000000	4.685575	4.986605	5.162696	5.287635	5.384545	5.463726	5.530673	5.588665	5.637710
10	5.685575	5.726968	5.764755	5.799518	5.831703	5.861666	5.889648	5.916024	5.940847	5.964233	5.986120
20	5.986605	6.007794	6.027998	6.047303	6.065786	6.083515	6.100598	6.116939	6.132733	6.148075	6.162966
30	6.162696	6.176937	6.190725	6.204089	6.217054	6.229643	6.241877	6.253777	6.265359	6.276633	6.287635
40	6.287635	6.298359	6.308824	6.319043	6.329028	6.338787	6.348333	6.357673	6.366816	6.375763	6.384545
50	6.384545	6.393145	6.401578	6.409851	6.417969	6.425938	6.433763	6.441450	6.449003	6.456423	6.463726
1	0	6.463726	6.470905	6.477967	6.484915	6.491757	6.498488	6.505119	6.511650	6.518084	6.524415
10	5.530673	6.536833	6.542907	6.548898	6.554805	6.560636	6.566389	6.572066	6.577670	6.583203	6.588665
20	6.588665	6.594060	6.599389	6.604653	6.609854	6.614994	6.620073	6.625094	6.630058	6.635066	6.640017
30	6.639817	6.644616	6.649363	6.654058	6.658703	6.663299	6.667846	6.672347	6.676801	6.681210	6.685575
40	6.685575	6.689896	6.694157	6.698412	6.702608	6.706764	6.710881	6.714959	6.718999	6.723003	6.726968
50	6.726968	6.730898	6.734793	6.738653	6.742480	6.746273	6.750033	6.753761	6.757457	6.761120	6.764755
1	10	6.764755	6.768600	6.772355	6.776020	6.779596	6.782485	6.785945	6.789379	6.792785	6.796160
20	6.799518	6.802846	6.806149	6.809427	6.812680	6.815909	6.819114	6.822290	6.825454	6.828606	6.831703
30	6.831703	6.834794	6.837863	6.840911	6.843937	6.846943	6.849928	6.852892	6.855837	6.858761	6.861666
40	6.861666	6.864554	6.867418	6.870266	6.873096	6.875907	6.878699	6.881475	6.884236	6.886982	6.889695
50	6.889695	6.892401	6.895090	6.897762	6.900419	6.903059	6.905683	6.908291	6.910884	6.913462	6.916024
2	0	6.916024	6.918571	6.921103	6.923621	6.926124	6.928613	6.931088	6.933548	6.935995	6.938429
10	6.940847	6.943358	6.945846	6.948302	6.950739	6.953157	6.955547	6.957916	6.959266	6.961606	6.963928
20	6.963928	6.966368	6.968786	6.971182	6.973557	6.975909	6.978231	6.980524	6.982798	6.985053	6.987298
30	6.988605	6.990871	6.993026	6.995071	6.997005	6.998929	6.999442	6.999442	6.999442	6.999442	6.999442
40	6.007794	6.009857	6.011911	6.013956	6.015983	6.017991	6.019981	6.021953	6.023907	6.025843	6.027763
50	6.027998	6.029967	6.031928	6.033880	6.035823	6.037757	6.039683	6.041601	6.043510	6.045410	6.047303
3	0	6.047303	6.049187	6.051063	6.052931	6.054791	6.056643	6.058487	6.060323	6.062152	6.063975
10	6.065786	6.067594	6.069390	6.071181	6.072965	6.074741	6.076510	6.078272	6.080026	6.081773	6.083515
20	6.083515	6.085249	6.086975	6.088695	6.090409	6.092115	6.093815	6.095508	6.097195	6.098876	6.100548
30	6.100548	6.102215	6.103876	6.105531	6.107179	6.108821	6.110456	6.112086	6.113710	6.115329	6.116939
40	6.116939	6.118544	6.120144	6.121737	6.123325	6.124907	6.126484	6.128055	6.129620	6.131180	6.132733
50	6.132733	6.134281	6.135824	6.137361	6.138893	6.140420	6.141941	6.143457	6.144967	6.146471	6.147973
4	0	6.147973	6.149468	6.150958	6.152442	6.153922	6.155397	6.156866	6.158331	6.159791	6.161246
10	6.161246	6.162696	6.164141	6.165582	6.167017	6.168448	6.169875	6.171296	6.172713	6.174125	6.175532
20	6.175532	6.176936	6.178335	6.179729	6.181119	6.182504	6.183885	6.185261	6.186634	6.188003	6.189368
30	6.189368	6.190725	6.192080	6.193431	6.194777	6.196120	6.197458	6.198792	6.200122	6.201449	6.202772
40	6.202772	6.204089	6.205403	6.206713	6.208019	6.209321	6.210620	6.211914	6.213205	6.214491	6.215774
50	6.215774	6.217054	6.218329	6.219601	6.220869	6.222133	6.223394	6.224651	6.225904	6.227154	6.228401
5	0	6.228401	6.229643	6.230882	6.232117	6.233349	6.234578	6.235803	6.237025	6.238243	6.239458
10	6.240668	6.241877	6.243082	6.244284	6.245481	6.246676	6.247868	6.249056	6.250241	6.251423	6.252602
20	6.252602	6.253776	6.254949	6.256118	6.257284	6.258446	6.259606	6.260763	6.261916	6.263066	6.264213
30	6.264213	6.265358	6.266500	6.267638	6.268773	6.269906	6.271035	6.272161	6.273286	6.274406	6.275523
40	6.275523	6.276639	6.277751	6.278861	6.279967	6.281071	6.282172	6.283270	6.284365	6.285457	6.286546
50	6.286546	6.287635	6.288719	6.289801	6.290880	6.291956	6.293030	6.294101	6.295169	6.296235	6.297298
6	0	6.297298	6.298358	6.299416	6.300472	6.301525	6.302575	6.303623	6.304668	6.305711	6.306751
10	6.306751	6.307792	6.308834	6.309877	6.310919	6.311961	6.312994	6.313998	6.314984	6.315962	6.316937
20	6.316937	6.317913	6.318890	6.319858	6.320826	6.321794	6.322761	6.323728	6.324694	6.325659	6.326624
30	6.326624	6.327590	6.328556	6.329521	6.330486	6.331450	6.332414	6.333377	6.334339	6.335299	6.336258
40	6.336258	6.337217	6.338175	6.339132	6.340088	6.341043	6.342000	6.342953	6.343909	6.344864	6.345817
50	6.345817	6.346772	6.347725	6.348677	6.349628	6.350578	6.351528	6.352476	6.353423	6.354369	6.355313
7	0	6.355313	6.356257	6.357200	6.358142	6.359083	6.360023	6.360962	6.361899	6.362834	6.363767
10	6.363767	6.364700	6.365631	6.366561	6.367489	6.368416	6.369342	6.370267	6.371190	6.372111	6.373031
20	6.373031	6.373950	6.374867	6.375782	6.376696	6.377608	6.378519	6.379428	6.380335	6.381240	6.382143
30	6.382143	6.383046	6.383947	6.384847	6.385745	6.386641	6.387536	6.388429	6.389320	6.390210	6.391098
40	6.391098	6.391984	6.392868	6.393750	6.394630	6.395508	6.396384	6.397258	6.398130	6.398999	6.399866
50	6.399866	6.400731	6.401594	6.402455	6.403314	6.404171	6.405026	6.405879	6.406730	6.407579	6.408426
8	0	6.408426	6.409271	6.410114	6.410955	6.411794	6.412631	6.413466	6.414299	6.415130	6.415959
10	6.415959	6.416786	6.417611	6.418434	6.419255	6.420074	6.420891	6.421706	6.422519	6.423330	6.424139
20	6.424139	6.424946	6.425751	6.426554	6.427355	6.428154	6.428951	6.429746	6.430539	6.431330	6.432119
30	6.432119	6.432910	6.433699	6.434486	6.435271	6.436054	6.436835	6.437614	6.438391	6.439166	6.439939
40	6.439939	6.440711	6.441481	6.442248	6.443013	6.443776	6.444537	6.445296	6.446053	6.446807	6.447559
50	6.447559	6.448310	6.449059	6.449806	6.450551	6.451294	6.452035	6.452774	6.453511	6.454246	6.454979
9	0	6.454979	6.455711	6.456441	6.457169	6.457894	6.458617	6.459338	6.460057	6.460774	6.461488
10	6.461488	6.462200	6.462910	6.463618	6.464324	6.465028	6.465730	6.466430	6.467127	6.467822	6.468515
11	0	6.468515	6.469206	6.469895	6.470582	6.471266	6.471947	6.472625	6.473301	6.473974	6.474645
12	0	6.474645	6.475314	6.475981	6.476645	6.477306	6.477964	6.478619	6.479271	6.479921	6.480568
13	0	6.480568	6.481224	6.481877	6.482527	6.483174	6.483818	6.484459	6.485097	6.485732	6.486364
14	0	6.486364	6.486998	6.487629	6.488257	6.488882	6.489504	6.490123	6.490739	6.491351	6.491960
15	0	6.491960	6.492567	6.493171	6.493772	6.494370	6.494965	6.495557	6.496146	6.496732	6.497315
16	0	6.497315	6.497898	6.498478	6.499055	6.499629	6.500200	6.500768	6.501332	6.501893	6.502450
17	0	6.502450	6.503008	6.503563	6.504115	6.504664	6.505210	6.505753	6.506293	6.506830	6.507364
18	0	6.507364	6.507898	6.508429	6.508957	6.509482	6.509994	6.510503	6.511009	6.511512	6.512012
19	0	6.512012	6.512518	6.513021	6.513521	6.514018	6.514512	6.514993	6.515471	6.515946	6.516418
20	0	6.516418	6.516887	6.517353	6.517816	6.518276	6.518733	6.519187	6.519638	6.520086	6.520531
21	0	6.520531	6.520976	6.521418	6.521857	6.522293	6.522726	6.523156	6.523583	6.523997	6.524408
22	0	6.524408	6.524821	6.525231	6.525638	6.526042	6.526443	6.526841	6.527236	6.527628	6.528017
23	0	6.528017	6.528404	6.528788	6.529169	6.529547	6.529922	6.530294	6.530663	6.531029	6.531392
24	0	6.531392	6.531753	6.532111	6.532466	6.532818	6.533167	6.533513	6.533856	6.534196	6.534533
25	0	6.534533	6.534869	6.535202	6.535532	6.535859	6.536183	6.536504	6.536822	6.537137	6.537449
26	0	6.537449	6.537761	6.538070	6.538376	6.538679	6.538979	6.539276	6.539571	6.539863	6.540152
27	0	6.540152	6.540439	6.540723	6.541004	6.541282	6.541557	6.541829	6.542098	6.542364	6.542627
28	0	6.542627	6.542890	6.543150	6.543407	6.543661	6.543912	6.544161	6.544407	6.544651	6.544892
29	0	6.544892	6.545133	6.545371	6.545606	6.545838	6.546068	6.546295	6.546519	6.546741	6.546960
30	0	6.546960	6.547178	6.547393	6.547605	6.547814	6.548021	6.548226	6.548429	6.548629	6.548827
31											

LOGARITHMIC SINES.

Sine of 0 degree, or Cosine of 90 degrees.										Seconds Minutes
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	
7.463726	7.464449	7.465171	7.465892	7.466611	7.467330	7.468047	7.468763	7.469478	7.470192	50
7.470904	7.471615	7.472326	7.473035	7.473743	7.474449	7.475155	7.475859	7.476563	7.477265	40
7.477966	7.478666	7.479365	7.480062	7.480759	7.481454	7.482149	7.482842	7.483534	7.484225	30
7.484915	7.485604	7.486291	7.486978	7.487663	7.488348	7.489031	7.489714	7.490395	7.491075	20
7.491754	7.492432	7.493109	7.493785	7.494460	7.495134	7.495807	7.496478	7.497149	7.497819	10
7.498488	7.499155	7.499822	7.500487	7.501152	7.501815	7.502478	7.503139	7.503800	7.504460	0 49
7.505118	7.505776	7.506432	7.507088	7.507742	7.508396	7.509048	7.509700	7.510351	7.511000	50
7.511649	7.512297	7.512943	7.513589	7.514234	7.514878	7.515521	7.516163	7.516804	7.517444	40
7.518083	7.518721	7.519358	7.519995	7.520630	7.521265	7.521898	7.522531	7.523163	7.523793	30
7.524423	7.525052	7.525680	7.526307	7.526934	7.527559	7.528183	7.528807	7.529430	7.530051	20
7.530672	7.531292	7.531911	7.532529	7.533147	7.533763	7.534379	7.534993	7.535607	7.536220	10
7.536832	7.537444	7.538054	7.538664	7.539272	7.539880	7.540487	7.541093	7.541698	7.542303	0 48
7.542907	7.543509	7.544111	7.544712	7.545312	7.545912	7.546511	7.547108	7.547705	7.548302	50
7.548897	7.549491	7.550085	7.550678	7.551270	7.551861	7.552452	7.553041	7.553630	7.554218	40
7.554806	7.555392	7.555978	7.556563	7.557147	7.557730	7.558313	7.558895	7.559476	7.560056	30
7.560635	7.561214	7.561792	7.562369	7.562945	7.563521	7.564096	7.564670	7.565243	7.565816	20
7.566388	7.566959	7.567529	7.568098	7.568667	7.569235	7.569803	7.570369	7.570935	7.571500	10
7.572065	7.572628	7.573191	7.573753	7.574315	7.574876	7.575436	7.575995	7.576553	7.577111	0 47
7.577668	7.578225	7.578781	7.579336	7.579890	7.580444	7.580996	7.581549	7.582100	7.582651	50
7.583201	7.583750	7.584299	7.584847	7.585394	7.585941	7.586487	7.587032	7.587577	7.588121	40
7.588664	7.589206	7.589748	7.590289	7.590830	7.591370	7.591909	7.592447	7.592985	7.593522	30
7.594059	7.594595	7.595130	7.595664	7.596198	7.596731	7.597264	7.597796	7.598327	7.598858	20
7.599388	7.599917	7.600446	7.600974	7.601501	7.602028	7.602554	7.603079	7.603604	7.604128	10
7.604652	7.605175	7.605697	7.606219	7.606740	7.607260	7.607780	7.608299	7.608818	7.609336	0 46
7.609853	7.610370	7.610886	7.611401	7.611916	7.612430	7.612944	7.613457	7.613970	7.614481	50
7.614993	7.615503	7.616013	7.616523	7.617032	7.617540	7.618047	7.618554	7.619061	7.619567	40
7.620072	7.620577	7.621081	7.621584	7.622087	7.622590	7.623092	7.623593	7.624093	7.624593	30
7.625093	7.625592	7.626090	7.626588	7.627085	7.627582	7.628078	7.628573	7.629068	7.629562	20
7.630056	7.630550	7.631042	7.631534	7.632026	7.632517	7.633007	7.633497	7.633986	7.634475	10
7.634964	7.635451	7.635938	7.636425	7.636911	7.637397	7.637882	7.638366	7.638850	7.639333	0 45
7.639816	7.640298	7.640780	7.641261	7.641742	7.642222	7.642702	7.643181	7.643659	7.644137	50
7.644615	7.645092	7.645568	7.646044	7.646520	7.646995	7.647469	7.647943	7.648416	7.648889	40
7.649361	7.649833	7.650304	7.650775	7.651245	7.651715	7.652184	7.652653	7.653121	7.653589	30
7.654056	7.654523	7.654989	7.655455	7.655920	7.656385	7.656849	7.657313	7.657776	7.658239	20
7.658701	7.659163	7.659624	7.660085	7.660545	7.661005	7.661465	7.661923	7.662382	7.662840	10
7.663297	7.663754	7.664210	7.664666	7.665122	7.665577	7.666031	7.666485	7.666939	7.667392	0 44
7.667845	7.668297	7.668748	7.669200	7.669650	7.670101	7.670550	7.671000	7.671449	7.671897	50
7.672343	7.672793	7.673240	7.673686	7.674132	7.674578	7.675023	7.675468	7.675912	7.676356	40
7.676799	7.677242	7.677685	7.678127	7.678568	7.679009	7.679450	7.679890	7.680330	7.680770	30
7.681208	7.681647	7.682085	7.682522	7.682960	7.683396	7.683833	7.684268	7.684704	7.685139	20
7.685573	7.686007	7.686441	7.686874	7.687307	7.687739	7.688171	7.688603	7.689034	7.689464	10
7.689895	7.690324	7.690754	7.691183	7.691611	7.692039	7.692467	7.692894	7.693321	7.693747	0 43
7.694173	7.694599	7.695024	7.695449	7.695873	7.696297	7.696720	7.697144	7.697566	7.697988	50
7.698410	7.698832	7.699253	7.699673	7.700094	7.700513	7.700933	7.701352	7.701770	7.702189	40
7.702606	7.703024	7.703441	7.703857	7.704274	7.704689	7.705105	7.705520	7.705934	7.706349	30
7.706762	7.707176	7.707589	7.708001	7.708414	7.708825	7.709237	7.709648	7.710059	7.710469	20
7.710879	7.711288	7.711697	7.712106	7.712515	7.712923	7.713330	7.713737	7.714144	7.714551	10
7.714957	7.715362	7.715768	7.716173	7.716577	7.716981	7.717385	7.717789	7.718192	7.718594	0 42
7.718997	7.719399	7.719800	7.720201	7.720602	7.721003	7.721403	7.721803	7.722202	7.722601	50
7.722999	7.723398	7.723796	7.724193	7.724590	7.724987	7.725383	7.725779	7.726175	7.726571	40
7.726966	7.727360	7.727754	7.728148	7.728542	7.728935	7.729328	7.729720	7.730112	7.730503	30
7.730896	7.731287	7.731678	7.732068	7.732458	7.732848	7.733237	7.733626	7.734015	7.734403	20
7.734791	7.735178	7.735566	7.735953	7.736339	7.736725	7.737111	7.737497	7.737882	7.738267	10
7.738651	7.739035	7.739419	7.739803	7.740186	7.740569	7.740951	7.741333	7.741715	7.742096	0 41
7.742477	7.742858	7.743239	7.743619	7.743999	7.744378	7.744757	7.745136	7.745515	7.745893	50
7.746271	7.746648	7.747025	7.747402	7.747778	7.748155	7.748530	7.748906	7.749281	7.749656	40
7.750031	7.750405	7.750779	7.751152	7.751526	7.751899	7.752271	7.752643	7.753015	7.753387	30
7.753758	7.754129	7.754500	7.754871	7.755241	7.755610	7.755980	7.756349	7.756718	7.757086	20
7.757455	7.757822	7.758190	7.758557	7.758924	7.759291	7.759657	7.760023	7.760389	7.760754	10
7.761119	7.761484	7.761849	7.762213	7.762577	7.762940	7.763304	7.763667	7.764029	7.764392	0 40
10°	9°	8°	7°	6°	5°	4°	3°	2°	1°	Seconds Minutes
Cosine of 89 degrees, or Sine of 179 degrees.										

TABLE XXXVI.

LOGARITHMIC SINES.

		Sine of 0 degree, or Co-sine of 90 degrees.										
		0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	
20	0	7.746358	7.765115	7.783872	7.802629	7.821386	7.840143	7.858900	7.877657	7.896414	7.915171	
	10	7.768358	7.787115	7.769075	7.769433	7.769791	7.770149	7.770506	7.770863	7.771220	7.771577	
	20	7.771932	7.772888	7.772644	7.772999	7.773354	7.773708	7.774063	7.774417	7.774771	7.775126	
	30	7.775477	7.775830	7.776183	7.776535	7.776887	7.777239	7.777591	7.777942	7.778293	7.778645	
	40	7.778994	7.779347	7.779694	7.780043	7.780393	7.780742	7.781090	7.781438	7.781787	7.782135	
21	0	7.782482	7.782830	7.783177	7.783523	7.783870	7.784216	7.784562	7.784908	7.785253	7.785598	
	10	7.785943	7.786287	7.786632	7.786976	7.787319	7.787663	7.788006	7.788349	7.788691	7.789034	
	20	7.789376	7.789718	7.790059	7.790401	7.790742	7.791083	7.791423	7.791763	7.792103	7.792443	
	30	7.792782	7.793121	7.793460	7.793799	7.794137	7.794475	7.794813	7.795151	7.795488	7.795825	
	40	7.796162	7.796498	7.796835	7.797171	7.797506	7.797842	7.798177	7.798512	7.798847	7.799181	
22	0	7.799545	7.799889	8.000183	8.000516	8.000850	8.001183	8.001515	8.001848	8.002180	8.002512	
	10	7.802843	7.803175	7.803506	7.803837	7.804167	7.804498	7.804828	7.805158	7.805487	7.805816	
	20	7.806146	7.806475	7.806803	7.807132	7.807460	7.807788	7.808115	7.808443	7.808770	7.809097	
	30	7.809424	7.809750	7.810076	7.810402	7.810728	7.811053	7.811378	7.811703	7.812028	7.812352	
	40	7.812677	7.813001	7.813324	7.813648	7.813971	7.814293	7.814617	7.814939	7.815262	7.815584	
23	0	7.815906	7.816227	7.816548	7.816868	7.817190	7.817511	7.817831	7.818152	7.818472	7.818791	
	10	7.819111	7.819430	7.819749	7.820068	7.820386	7.820704	7.821022	7.821340	7.821658	7.821975	
	20	7.822292	7.822609	7.822926	7.823242	7.823558	7.823874	7.824190	7.824506	7.824821	7.825136	
	30	7.825451	7.825765	7.826080	7.826394	7.826708	7.827021	7.827335	7.827648	7.827961	7.828274	
	40	7.828586	7.828899	7.829211	7.829523	7.829834	7.830146	7.830457	7.830768	7.831078	7.831388	
24	0	7.831700	7.832010	7.832320	7.832629	7.832939	7.833248	7.833557	7.833866	7.834174	7.834482	
	10	7.834791	7.835099	7.835406	7.835714	7.836021	7.836328	7.836635	7.836941	7.837248	7.837554	
	20	7.837860	7.838166	7.838471	7.838776	7.839081	7.839386	7.839691	7.839995	7.840300	7.840604	
	30	7.840907	7.841211	7.841514	7.841818	7.842121	7.842423	7.842726	7.843028	7.843330	7.843632	
	40	7.843934	7.844235	7.844537	7.844838	7.845139	7.845439	7.845740	7.846040	7.846340	7.846640	
25	0	7.846939	7.847239	7.847538	7.847837	7.848136	7.848433	7.848733	7.849030	7.849329	7.849627	
	10	7.849924	7.850222	7.850519	7.850816	7.851112	7.851409	7.851705	7.852001	7.852297	7.852592	
	20	7.852889	7.853184	7.853479	7.853774	7.854069	7.854363	7.854658	7.854952	7.855246	7.855540	
	30	7.855833	7.856126	7.856419	7.856712	7.857005	7.857298	7.857590	7.857882	7.858174	7.858466	
	40	7.858757	7.859049	7.859340	7.859631	7.859922	7.860212	7.860503	7.860793	7.861083	7.861373	
26	0	7.861662	7.861952	7.862241	7.862530	7.862819	7.863108	7.863396	7.863684	7.863972	7.864260	
	10	7.864548	7.864835	7.865123	7.865410	7.865697	7.865984	7.866270	7.866557	7.866843	7.867129	
	20	7.867415	7.867700	7.867986	7.868271	7.868556	7.868841	7.869125	7.869410	7.869694	7.869978	
	30	7.870262	7.870546	7.870830	7.871113	7.871396	7.871679	7.871962	7.872245	7.872527	7.872810	
	40	7.873092	7.873374	7.873655	7.873937	7.874218	7.874499	7.874780	7.875061	7.875342	7.875622	
27	0	7.875903	7.876183	7.876463	7.876742	7.877022	7.877301	7.877580	7.877859	7.878138	7.878416	
	10	7.878695	7.878974	7.879252	7.879530	7.879808	7.880085	7.880363	7.880640	7.880917	7.881194	
	20	7.881470	7.881747	7.882023	7.882299	7.882575	7.882851	7.883127	7.883402	7.883678	7.883953	
	30	7.884228	7.884503	7.884777	7.885052	7.885326	7.885600	7.885874	7.886148	7.886421	7.886694	
	40	7.886968	7.887241	7.887514	7.887786	7.888059	7.888331	7.888603	7.888875	7.889147	7.889418	
28	0	7.889691	7.889962	7.890233	7.890504	7.890775	7.891046	7.891316	7.891586	7.891857	7.892127	
	10	7.892306	7.892666	7.892936	7.893205	7.893474	7.893743	7.894012	7.894280	7.894549	7.894817	
	20	7.895085	7.895353	7.895621	7.895889	7.896156	7.896422	7.896689	7.896958	7.897225	7.897492	
	30	7.897758	7.898024	7.898291	7.898557	7.898822	7.899088	7.899354	7.899619	7.899884	7.900149	
	40	7.900414	7.900679	7.900943	7.901208	7.901472	7.901736	7.902000	7.902264	7.902528	7.902791	
29	0	7.903545	7.903317	7.903580	7.903843	7.904106	7.904368	7.904631	7.904893	7.905155	7.905417	
	10	7.905678	7.905940	7.906201	7.906462	7.906723	7.906984	7.907245	7.907506	7.907766	7.908026	
	20	7.908287	7.908547	7.908806	7.909066	7.909326	7.909585	7.909844	7.910103	7.910362	7.910621	
	30	7.910879	7.911138	7.911396	7.911654	7.911912	7.912170	7.912428	7.912685	7.912943	7.913199	
	40	7.913457	7.913714	7.913970	7.914227	7.914483	7.914740	7.914996	7.915252	7.915508	7.915764	
30	0	7.916019	7.916274	7.916530	7.916785	7.917040	7.917294	7.917549	7.917803	7.918058	7.918311	
	10	7.918566	7.918820	7.919074	7.919327	7.919581	7.919834	7.920087	7.920340	7.920593	7.920846	
	20	7.921098	7.921351	7.921603	7.921855	7.922107	7.922359	7.922611	7.922862	7.923114	7.923365	
	30	7.923616	7.923867	7.924118	7.924368	7.924619	7.924869	7.925120	7.925370	7.925620	7.925870	
	40	7.926119	7.926369	7.926618	7.926867	7.927116	7.927365	7.927614	7.927863	7.928111	7.928359	
31	0	7.928608	7.928856	7.929104	7.929351	7.929599	7.929847	7.930094	7.930341	7.930589	7.930836	
	10	7.931082	7.931329	7.931576	7.931822	7.932068	7.932314	7.932560	7.932806	7.933052	7.933297	
	20	7.933543	7.933789	7.934033	7.934278	7.934523	7.934768	7.935013	7.935257	7.935502	7.935746	
	30	7.935990	7.936233	7.936477	7.936721	7.936964	7.937208	7.937451	7.937694	7.937937	7.938180	
	40	7.938422	7.938665	7.938907	7.939150	7.939392	7.939634	7.939876	7.940118	7.940359	7.940600	
		10°	9°	8°	7°	6°	5°	4°	3°	2°	1°	
		Co-sine of 89 degrees, or Sine of 179 degrees.										

LOGARITHMIC SINES.

Sine of 0 degree, or Cosine of 90 degrees.										Seconds	Minutes
1"	2"	3"	4"	5"	6"	7"	8"	9"			
42	7.941083	7.941324	7.941565	7.941806	7.942047	7.942287	7.942528	7.942768	7.943008	50	
48	7.943488	7.943728	7.943967	7.944207	7.944446	7.944685	7.944924	7.945163	7.945402	40	
41	7.945879	7.946118	7.946356	7.946594	7.946832	7.947070	7.947308	7.947545	7.947783	30	
20	7.948258	7.948495	7.948732	7.948969	7.949205	7.949442	7.949678	7.949915	7.950151	20	
87	7.950623	7.950859	7.951094	7.951330	7.951565	7.951801	7.952036	7.952271	7.952506	10	
41	7.952976	7.953210	7.953444	7.953679	7.953913	7.954147	7.954381	7.954615	7.954848	0 29	
82	7.955315	7.955549	7.955782	7.956015	7.956248	7.956481	7.956713	7.956946	7.957178	50	
11	7.957643	7.957875	7.958107	7.958339	7.958570	7.958802	7.959033	7.959265	7.959496	40	
27	7.959958	7.960189	7.960419	7.960650	7.960880	7.961111	7.961341	7.961571	7.961801	30	
131	7.962260	7.962490	7.962719	7.962949	7.963178	7.963407	7.963636	7.963865	7.964094	20	
22	7.964551	7.964779	7.965008	7.965236	7.965464	7.965692	7.965919	7.966147	7.966375	10	
02	7.966829	7.967057	7.967284	7.967511	7.967737	7.967964	7.968191	7.968417	7.968644	0 28	
79	7.969096	7.969322	7.969548	7.969774	7.969999	7.970225	7.970450	7.970676	7.970901	50	
26	7.971351	7.971576	7.971800	7.972025	7.972250	7.972474	7.972698	7.972923	7.973146	40	
79	7.973594	7.973818	7.974041	7.974265	7.974488	7.974711	7.974934	7.975157	7.975380	30	
03	7.975826	7.976048	7.976271	7.976493	7.976715	7.976937	7.977159	7.977381	7.977603	20	
24	7.978046	7.978267	7.978489	7.978710	7.978931	7.979152	7.979373	7.979593	7.979814	10	
35	7.980255	7.980475	7.980695	7.980915	7.981135	7.981355	7.981575	7.981795	7.982014	0 27	
33	7.982453	7.982672	7.982891	7.983110	7.983329	7.983547	7.983766	7.983985	7.984203	50	
21	7.984639	7.984857	7.985075	7.985293	7.985511	7.985729	7.985946	7.986164	7.986381	40	
98	7.986815	7.987032	7.987249	7.987466	7.987682	7.987899	7.988115	7.988332	7.988548	30	
64	7.988908	7.989126	7.989342	7.989558	7.989774	7.989989	7.990204	7.990419	7.990634	20	
19	7.991134	7.991349	7.991564	7.991778	7.991993	7.992207	7.992422	7.992636	7.992850	10	
64	7.993278	7.993492	7.993705	7.993919	7.994132	7.994346	7.994559	7.994772	7.994985	0 26	
98	7.995411	7.995624	7.995836	7.996049	7.996261	7.996473	7.996686	7.996898	7.997110	50	
22	7.997533	7.997745	7.997957	7.998168	7.998380	7.998591	7.998802	7.999013	7.999224	40	
35	7.999646	7.999856	8.000067	8.000277	8.000488	8.000698	8.000908	8.001118	8.001328	30	
38	8.001748	8.001957	8.002167	8.002376	8.002586	8.002795	8.003004	8.003213	8.003422	20	
31	8.003840	8.004048	8.004257	8.004465	8.004674	8.004882	8.005090	8.005298	8.005506	10	
14	8.005922	8.006129	8.006337	8.006544	8.006751	8.006959	8.007166	8.007373	8.007580	0 25	
87	8.007993	8.008200	8.008407	8.008613	8.008819	8.009026	8.009232	8.009438	8.009644	50	
50	8.010056	8.010261	8.010467	8.010672	8.010878	8.011083	8.011288	8.011493	8.011698	40	
03	8.012108	8.012313	8.012517	8.012722	8.012926	8.013130	8.013335	8.013539	8.013743	30	
47	8.014151	8.014354	8.014558	8.014762	8.014965	8.015168	8.015372	8.015575	8.015778	20	
81	8.016184	8.016387	8.016589	8.016792	8.016994	8.017197	8.017399	8.017601	8.017803	10	
06	8.018207	8.018409	8.018611	8.018813	8.019014	8.019216	8.019417	8.019618	8.019820	0 24	
21	8.020222	8.020423	8.020623	8.020824	8.021025	8.021225	8.021426	8.021626	8.021826	50	
27	8.022227	8.022427	8.022627	8.022826	8.023026	8.023226	8.023425	8.023625	8.023824	40	
23	8.024228	8.024427	8.024627	8.024826	8.025026	8.025225	8.025425	8.025624	8.025823	30	
11	8.026209	8.026407	8.026605	8.026803	8.027001	8.027199	8.027397	8.027594	8.027792	20	
89	8.028187	8.028384	8.028581	8.028778	8.028975	8.029172	8.029369	8.029566	8.029762	10	
59	8.030155	8.030352	8.030548	8.030744	8.030940	8.031136	8.031332	8.031528	8.031724	0 23	
20	8.032115	8.032311	8.032506	8.032701	8.032897	8.033092	8.033287	8.033482	8.033677	50	
71	8.034066	8.034261	8.034455	8.034650	8.034844	8.035038	8.035232	8.035426	8.035620	40	
14	8.036008	8.036202	8.036396	8.036589	8.036783	8.036976	8.037169	8.037363	8.037556	30	
49	8.037942	8.038135	8.038327	8.038520	8.038713	8.038905	8.039098	8.039290	8.039482	20	
75	8.039867	8.040059	8.040251	8.040443	8.040634	8.040826	8.041018	8.041209	8.041401	10	
92	8.041783	8.041974	8.042166	8.042357	8.042548	8.042738	8.042929	8.043120	8.043310	0 22	
01	8.043691	8.043882	8.044072	8.044262	8.044452	8.044642	8.044832	8.045022	8.045212	50	
01	8.045591	8.045781	8.045970	8.046159	8.046349	8.046538	8.046727	8.046916	8.047105	40	
94	8.047483	8.047671	8.047860	8.048048	8.048237	8.048425	8.048613	8.048802	8.048990	30	
78	8.049366	8.049554	8.049741	8.049929	8.050117	8.050304	8.050492	8.050679	8.050867	20	
54	8.051241	8.051428	8.051615	8.051802	8.051989	8.052175	8.052362	8.052549	8.052735	10	
22	8.053108	8.053294	8.053480	8.053667	8.053853	8.054038	8.054224	8.054410	8.054596	0 21	
81	8.054967	8.055152	8.055338	8.055523	8.055708	8.055894	8.056079	8.056264	8.056449	50	
33	8.056818	8.057003	8.057187	8.057372	8.057556	8.057741	8.057925	8.058109	8.058293	40	
77	8.058661	8.058845	8.059029	8.059213	8.059397	8.059580	8.059764	8.059947	8.060130	30	
14	8.060497	8.060680	8.060863	8.061046	8.061229	8.061412	8.061594	8.061777	8.061960	20	
42	8.062325	8.062507	8.062689	8.062871	8.063054	8.063236	8.063418	8.063600	8.063781	10	
63	8.064145	8.064326	8.064508	8.064689	8.064871	8.065052	8.065233	8.065414	8.065595	0 20	
9"	8"	7"	6"	5"	4"	3"	2"	1"		Seconds	Minutes
Cosine of 89 degrees, or sine of 179 degrees.										Seconds	Minutes

LOGARITHMIC SINES.

		Sine of 0 degree, or Co-sine of 90 degrees.									
Minutes	Seconds	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'
40	0	8.065776	8.065957	8.066138	8.066319	8.066500	8.066680	8.066861	8.067041	8.067222	8.067402
10	8.067582	8.067762	8.067942	8.068122	8.068302	8.068482	8.068662	8.068842	8.069022	8.069202	8.069382
20	8.069562	8.069742	8.069922	8.070102	8.070282	8.070462	8.070642	8.070822	8.071002	8.071182	8.071362
30	8.071542	8.071722	8.071902	8.072082	8.072262	8.072442	8.072622	8.072802	8.072982	8.073162	8.073342
40	8.073522	8.073702	8.073882	8.074062	8.074242	8.074422	8.074602	8.074782	8.074962	8.075142	8.075322
50	8.075502	8.075682	8.075862	8.076042	8.076222	8.076402	8.076582	8.076762	8.076942	8.077122	8.077302
41	0	8.077482	8.077662	8.077842	8.078022	8.078202	8.078382	8.078562	8.078742	8.078922	8.079102
10	8.079282	8.079462	8.079642	8.079822	8.080002	8.080182	8.080362	8.080542	8.080722	8.080902	8.081082
20	8.081262	8.081442	8.081622	8.081802	8.081982	8.082162	8.082342	8.082522	8.082702	8.082882	8.083062
30	8.083242	8.083422	8.083602	8.083782	8.083962	8.084142	8.084322	8.084502	8.084682	8.084862	8.085042
40	8.085222	8.085402	8.085582	8.085762	8.085942	8.086122	8.086302	8.086482	8.086662	8.086842	8.087022
50	8.087202	8.087382	8.087562	8.087742	8.087922	8.088102	8.088282	8.088462	8.088642	8.088822	8.089002
42	0	8.089182	8.089362	8.089542	8.089722	8.089902	8.090082	8.090262	8.090442	8.090622	8.090802
10	8.090982	8.091162	8.091342	8.091522	8.091702	8.091882	8.092062	8.092242	8.092422	8.092602	8.092782
20	8.092962	8.093142	8.093322	8.093502	8.093682	8.093862	8.094042	8.094222	8.094402	8.094582	8.094762
30	8.094942	8.095122	8.095302	8.095482	8.095662	8.095842	8.096022	8.096202	8.096382	8.096562	8.096742
40	8.096922	8.097102	8.097282	8.097462	8.097642	8.097822	8.098002	8.098182	8.098362	8.098542	8.098722
50	8.098902	8.099082	8.099262	8.099442	8.099622	8.099802	8.100002	8.100182	8.100362	8.100542	8.100722
43	0	8.100902	8.101082	8.101262	8.101442	8.101622	8.101802	8.101982	8.102162	8.102342	8.102522
10	8.102702	8.102882	8.103062	8.103242	8.103422	8.103602	8.103782	8.103962	8.104142	8.104322	8.104502
20	8.104682	8.104862	8.105042	8.105222	8.105402	8.105582	8.105762	8.105942	8.106122	8.106302	8.106482
30	8.106662	8.106842	8.107022	8.107202	8.107382	8.107562	8.107742	8.107922	8.108102	8.108282	8.108462
40	8.108642	8.108822	8.109002	8.109182	8.109362	8.109542	8.109722	8.109902	8.110082	8.110262	8.110442
50	8.110622	8.110802	8.110982	8.111162	8.111342	8.111522	8.111702	8.111882	8.112062	8.112242	8.112422
44	0	8.112602	8.112782	8.112962	8.113142	8.113322	8.113502	8.113682	8.113862	8.114042	8.114222
10	8.114402	8.114582	8.114762	8.114942	8.115122	8.115302	8.115482	8.115662	8.115842	8.116022	8.116202
20	8.116382	8.116562	8.116742	8.116922	8.117102	8.117282	8.117462	8.117642	8.117822	8.118002	8.118182
30	8.118362	8.118542	8.118722	8.118902	8.119082	8.119262	8.119442	8.119622	8.119802	8.119982	8.120162
40	8.120342	8.120522	8.120702	8.120882	8.121062	8.121242	8.121422	8.121602	8.121782	8.121962	8.122142
50	8.122322	8.122502	8.122682	8.122862	8.123042	8.123222	8.123402	8.123582	8.123762	8.123942	8.124122
45	0	8.124302	8.124482	8.124662	8.124842	8.125022	8.125202	8.125382	8.125562	8.125742	8.125922
10	8.126102	8.126282	8.126462	8.126642	8.126822	8.127002	8.127182	8.127362	8.127542	8.127722	8.127902
20	8.128082	8.128262	8.128442	8.128622	8.128802	8.128982	8.129162	8.129342	8.129522	8.129702	8.129882
30	8.129962	8.130142	8.130322	8.130502	8.130682	8.130862	8.131042	8.131222	8.131402	8.131582	8.131762
40	8.131942	8.132122	8.132302	8.132482	8.132662	8.132842	8.133022	8.133202	8.133382	8.133562	8.133742
50	8.133922	8.134102	8.134282	8.134462	8.134642	8.134822	8.135002	8.135182	8.135362	8.135542	8.135722
46	0	8.135902	8.136082	8.136262	8.136442	8.136622	8.136802	8.136982	8.137162	8.137342	8.137522
10	8.137702	8.137882	8.138062	8.138242	8.138422	8.138602	8.138782	8.138962	8.139142	8.139322	8.139502
20	8.139682	8.139862	8.140042	8.140222	8.140402	8.140582	8.140762	8.140942	8.141122	8.141302	8.141482
30	8.141662	8.141842	8.142022	8.142202	8.142382	8.142562	8.142742	8.142922	8.143102	8.143282	8.143462
40	8.143642	8.143822	8.144002	8.144182	8.144362	8.144542	8.144722	8.144902	8.145082	8.145262	8.145442
50	8.145622	8.145802	8.145982	8.146162	8.146342	8.146522	8.146702	8.146882	8.147062	8.147242	8.147422
47	0	8.147602	8.147782	8.147962	8.148142	8.148322	8.148502	8.148682	8.148862	8.149042	8.149222
10	8.149402	8.149582	8.149762	8.149942	8.150122	8.150302	8.150482	8.150662	8.150842	8.151022	8.151202
20	8.151382	8.151562	8.151742	8.151922	8.152102	8.152282	8.152462	8.152642	8.152822	8.153002	8.153182
30	8.153362	8.153542	8.153722	8.153902	8.154082	8.154262	8.154442	8.154622	8.154802	8.154982	8.155162
40	8.155342	8.155522	8.155702	8.155882	8.156062	8.156242	8.156422	8.156602	8.156782	8.156962	8.157142
50	8.157322	8.157502	8.157682	8.157862	8.158042	8.158222	8.158402	8.158582	8.158762	8.158942	8.159122
48	0	8.159302	8.159482	8.159662	8.159842	8.160022	8.160202	8.160382	8.160562	8.160742	8.160922
10	8.161102	8.161282	8.161462	8.161642	8.161822	8.162002	8.162182	8.162362	8.162542	8.162722	8.162902
20	8.163082	8.163262	8.163442	8.163622	8.163802	8.163982	8.164162	8.164342	8.164522	8.164702	8.164882
30	8.165062	8.165242	8.165422	8.165602	8.165782	8.165962	8.166142	8.166322	8.166502	8.166682	8.166862
40	8.167042	8.167222	8.167402	8.167582	8.167762	8.167942	8.168122	8.168302	8.168482	8.168662	8.168842
50	8.169022	8.169202	8.169382	8.169562	8.169742	8.169922	8.170102	8.170282	8.170462	8.170642	8.170822
49	0	8.171002	8.171182	8.171362	8.171542	8.171722	8.171902	8.172082	8.172262	8.172442	8.172622
10	8.172802	8.172982	8.173162	8.173342	8.173522	8.173702	8.173882	8.174062	8.174242	8.174422	8.174602
20	8.174782	8.174962	8.175142	8.175322	8.175502	8.175682	8.175862	8.176042	8.176222	8.176402	8.176582
30	8.176762	8.176942	8.177122	8.177302	8.177482	8.177662	8.177842	8.178022	8.178202	8.178382	8.178562
40	8.178742	8.178922	8.179102	8.179282	8.179462	8.179642	8.179822	8.179999	8.180179	8.180359	8.180539
50	8.180719	8.180899	8.181079	8.181259	8.181439	8.181619	8.181799	8.181979	8.182159	8.182339	8.182519
		10'	9'	8'	7'	6'	5'	4'	3'	2'	1'
		Co-sine of 89 degrees, or Sine of 179 degrees.									

TABLE XXXVI.
LOGARITHMIC SINES.

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Sine of 0 degree, or Co-sine of 90 degrees.										Seconds	Minutes
0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
8.162681	8.162826	8.162970	8.163115	8.163259	8.163404	8.163549	8.163693	8.163837	8.163982	50	
8.164126	8.164270	8.164414	8.164559	8.164703	8.164847	8.164991	8.165135	8.165279	8.165423	40	
8.165566	8.165710	8.165854	8.165998	8.166141	8.166285	8.166428	8.166572	8.166715	8.166859	30	
8.167002	8.167145	8.167288	8.167432	8.167575	8.167718	8.167861	8.168004	8.168147	8.168290	20	
8.168433	8.168576	8.168718	8.168861	8.169004	8.169146	8.169289	8.169432	8.169574	8.169717	10	
8.169859	8.170001	8.170144	8.170286	8.170428	8.170570	8.170712	8.170854	8.170996	8.171138	0	9
8.171280	8.171422	8.171564	8.171706	8.171848	8.171989	8.172131	8.172273	8.172414	8.172556	50	
8.172697	8.172839	8.172980	8.173121	8.173263	8.173404	8.173545	8.173686	8.173827	8.173968	40	
8.174109	8.174250	8.174391	8.174532	8.174673	8.174814	8.174955	8.175095	8.175236	8.175377	30	
8.175517	8.175658	8.175798	8.175939	8.176079	8.176219	8.176360	8.176500	8.176640	8.176780	20	
8.176920	8.177060	8.177200	8.177340	8.177480	8.177620	8.177760	8.177900	8.178039	8.178179	10	
8.178319	8.178458	8.178598	8.178738	8.178877	8.179016	8.179156	8.179295	8.179434	8.179574	0	8
8.179713	8.179852	8.179991	8.180130	8.180269	8.180408	8.180547	8.180686	8.180825	8.180964	50	
8.181103	8.181241	8.181380	8.181519	8.181657	8.181796	8.181934	8.182073	8.182211	8.182349	40	
8.182488	8.182626	8.182764	8.182902	8.183041	8.183179	8.183317	8.183455	8.183593	8.183731	30	
8.183869	8.184006	8.184144	8.184282	8.184420	8.184557	8.184695	8.184833	8.184970	8.185108	20	
8.185245	8.185382	8.185520	8.185657	8.185794	8.185932	8.186069	8.186206	8.186343	8.186480	10	
8.186617	8.186754	8.186891	8.187028	8.187165	8.187301	8.187438	8.187575	8.187712	8.187848	0	7
8.187985	8.188121	8.188258	8.188394	8.188531	8.188667	8.188803	8.188940	8.189076	8.189212	50	
8.189348	8.189484	8.189620	8.189756	8.189892	8.190028	8.190164	8.190300	8.190436	8.190572	40	
8.190707	8.190843	8.190979	8.191114	8.191250	8.191385	8.191521	8.191656	8.191792	8.191927	30	
8.192062	8.192198	8.192333	8.192468	8.192603	8.192738	8.192873	8.193008	8.193143	8.193278	20	
8.193413	8.193548	8.193683	8.193818	8.193952	8.194087	8.194222	8.194356	8.194491	8.194625	10	
8.194760	8.194894	8.195028	8.195163	8.195297	8.195431	8.195566	8.195700	8.195834	8.195968	0	6
8.196102	8.196236	8.196370	8.196504	8.196638	8.196772	8.196906	8.197039	8.197173	8.197307	50	
8.197440	8.197574	8.197707	8.197841	8.197974	8.198108	8.198241	8.198375	8.198508	8.198641	40	
8.198774	8.198908	8.199041	8.199174	8.199307	8.199440	8.199573	8.199706	8.199839	8.199972	30	
8.200104	8.200237	8.200370	8.200503	8.200635	8.200768	8.200901	8.201033	8.201166	8.201298	20	
8.201430	8.201563	8.201695	8.201827	8.201960	8.202092	8.202224	8.202356	8.202488	8.202620	10	
8.202752	8.202884	8.203016	8.203148	8.203280	8.203412	8.203544	8.203675	8.203807	8.203939	0	5
8.204070	8.204202	8.204333	8.204465	8.204596	8.204728	8.204859	8.204991	8.205122	8.205253	50	
8.205384	8.205515	8.205647	8.205778	8.205909	8.206040	8.206171	8.206302	8.206433	8.206563	40	
8.206694	8.206825	8.206956	8.207086	8.207217	8.207348	8.207478	8.207609	8.207739	8.207870	30	
8.208000	8.208131	8.208261	8.208391	8.208522	8.208652	8.208782	8.208912	8.209042	8.209172	20	
8.209302	8.209432	8.209562	8.209692	8.209822	8.209952	8.210082	8.210212	8.210341	8.210471	10	
8.210601	8.210730	8.210860	8.210989	8.211119	8.211248	8.211378	8.211507	8.211636	8.211766	0	4
8.211895	8.212024	8.212153	8.212283	8.212412	8.212541	8.212670	8.212799	8.212928	8.213057	50	
8.213185	8.213314	8.213443	8.213572	8.213701	8.213829	8.213958	8.214087	8.214215	8.214344	40	
8.214472	8.214601	8.214729	8.214857	8.214986	8.215114	8.215242	8.215371	8.215499	8.215627	30	
8.215755	8.215883	8.216011	8.216139	8.216267	8.216395	8.216523	8.216651	8.216779	8.216906	20	
8.217034	8.217162	8.217290	8.217417	8.217545	8.217672	8.217800	8.217927	8.218055	8.218182	10	
8.218310	8.218437	8.218564	8.218691	8.218819	8.218946	8.219073	8.219200	8.219327	8.219454	0	3
8.219581	8.219708	8.219835	8.219962	8.220089	8.220216	8.220342	8.220469	8.220596	8.220722	50	
8.220849	8.220976	8.221102	8.221229	8.221355	8.221482	8.221608	8.221734	8.221861	8.221987	40	
8.222113	8.222239	8.222366	8.222492	8.222618	8.222744	8.222870	8.222996	8.223122	8.223248	30	
8.223374	8.223500	8.223625	8.223751	8.223877	8.224003	8.224128	8.224254	8.224380	8.224505	20	
8.224631	8.224756	8.224882	8.225007	8.225132	8.225258	8.225383	8.225508	8.225634	8.225759	10	
8.225884	8.226009	8.226134	8.226259	8.226384	8.226509	8.226634	8.226759	8.226884	8.227009	0	2
8.227134	8.227258	8.227383	8.227508	8.227632	8.227757	8.227882	8.228006	8.228131	8.228255	50	
8.228380	8.228504	8.228628	8.228753	8.228877	8.229001	8.229126	8.229250	8.229374	8.229498	40	
8.229622	8.229746	8.229870	8.229994	8.230118	8.230242	8.230366	8.230490	8.230614	8.230737	30	
8.230861	8.230985	8.231108	8.231232	8.231356	8.231479	8.231603	8.231726	8.231850	8.231973	20	
8.232097	8.232220	8.232343	8.232466	8.232590	8.232713	8.232836	8.232959	8.233082	8.233205	10	
8.233328	8.233451	8.233574	8.233697	8.233820	8.233943	8.234066	8.234189	8.234311	8.234434	0	1
8.234557	8.234680	8.234802	8.234925	8.235047	8.235170	8.235292	8.235415	8.235537	8.235659	50	
8.235782	8.235904	8.236026	8.236149	8.236271	8.236393	8.236515	8.236637	8.236759	8.236881	40	
8.237003	8.237125	8.237247	8.237369	8.237491	8.237613	8.237735	8.237856	8.237978	8.238100	30	
8.238221	8.238343	8.238465	8.238586	8.238708	8.238829	8.238951	8.239072	8.239193	8.239315	20	
8.239436	8.239557	8.239679	8.239800	8.239921	8.240042	8.240163	8.240284	8.240405	8.240526	10	
8.240647	8.240768	8.240889	8.241010	8.241131	8.241252	8.241373	8.241493	8.241614	8.241735	0	0
10"	9"	8"	7"	6"	5"	4"	3"	2"	1"	Seconds	Minutes
Co-sine of 89 degrees, or Sine of 179 degrees.											

TABLE XXXVI.

LOGARITHMIC SINES.

Minutes		Sine of 1 degree, or Co-sine of 91 degrees.									
Seconds		0"	1"	2"	3"	4"	5"	6"	7"	8"	
0	0	8.241855	8.241976	8.242097	8.242217	8.242338	8.242458	8.242579	8.242699	8.242819	
	10	8.243060	8.243180	8.243300	8.243421	8.243541	8.243661	8.243781	8.243901	8.244021	
	20	8.244261	8.244381	8.244501	8.244621	8.244741	8.244861	8.244980	8.245100	8.245220	
	30	8.245459	8.245579	8.245698	8.245818	8.245937	8.246057	8.246176	8.246296	8.246415	
	40	8.246654	8.246773	8.246892	8.247012	8.247131	8.247250	8.247369	8.247488	8.247607	
50	8.247845	8.247964	8.248083	8.248202	8.248321	8.248440	8.248558	8.248677	8.248796		
1	0	8.249033	8.249152	8.249270	8.249389	8.249508	8.249626	8.249745	8.249863	8.249981	
	10	8.250218	8.250336	8.250455	8.250573	8.250691	8.250809	8.250927	8.251046	8.251164	
	20	8.251400	8.251518	8.251636	8.251754	8.251871	8.251989	8.252107	8.252225	8.252343	
	30	8.252578	8.252696	8.252813	8.252931	8.253049	8.253166	8.253284	8.253401	8.253519	
	40	8.253753	8.253871	8.253988	8.254105	8.254223	8.254340	8.254457	8.254574	8.254691	
50	8.254925	8.255042	8.255159	8.255276	8.255393	8.255510	8.255627	8.255744	8.255861		
2	0	8.256094	8.256211	8.256328	8.256444	8.256561	8.256678	8.256794	8.256911	8.257027	
	10	8.257260	8.257376	8.257492	8.257609	8.257726	8.257842	8.257958	8.258074	8.258190	
	20	8.258423	8.258539	8.258655	8.258771	8.258887	8.259003	8.259119	8.259235	8.259351	
	30	8.259582	8.259698	8.259814	8.259930	8.260045	8.260161	8.260276	8.260392	8.260508	
	40	8.260739	8.260854	8.260970	8.261085	8.261200	8.261316	8.261431	8.261546	8.261662	
50	8.261892	8.262007	8.262122	8.262238	8.262353	8.262468	8.262583	8.262698	8.262813		
3	0	8.263042	8.263157	8.263272	8.263387	8.263502	8.263616	8.263731	8.263846	8.263960	
	10	8.264190	8.264304	8.264419	8.264533	8.264648	8.264762	8.264877	8.264991	8.265105	
	20	8.265334	8.265448	8.265562	8.265677	8.265791	8.265905	8.266019	8.266133	8.266247	
	30	8.266475	8.266589	8.266703	8.266817	8.266931	8.267045	8.267159	8.267272	8.267386	
	40	8.267613	8.267727	8.267841	8.267955	8.268068	8.268181	8.268295	8.268408	8.268522	
50	8.268749	8.268862	8.268975	8.269089	8.269202	8.269315	8.269428	8.269542	8.269655		
4	0	8.269881	8.269994	8.270107	8.270220	8.270333	8.270446	8.270559	8.270672	8.270785	
	10	8.271010	8.271123	8.271236	8.271349	8.271461	8.271574	8.271687	8.271799	8.271912	
	20	8.272137	8.272249	8.272362	8.272474	8.272587	8.272699	8.272811	8.272924	8.273036	
	30	8.273260	8.273373	8.273485	8.273597	8.273709	8.273821	8.273933	8.274045	8.274157	
	40	8.274381	8.274493	8.274605	8.274717	8.274828	8.274940	8.275052	8.275164	8.275275	
50	8.275499	8.275610	8.275722	8.275834	8.275945	8.276057	8.276168	8.276279	8.276390		
5	0	8.276614	8.276725	8.276836	8.276948	8.277059	8.277170	8.277281	8.277392	8.277503	
	10	8.277726	8.277837	8.277948	8.278059	8.278170	8.278281	8.278392	8.278502	8.278613	
	20	8.278835	8.278946	8.279056	8.279167	8.279278	8.279388	8.279499	8.279610	8.279720	
	30	8.279941	8.280052	8.280162	8.280273	8.280383	8.280493	8.280604	8.280714	8.280824	
	40	8.281045	8.281155	8.281265	8.281375	8.281485	8.281595	8.281706	8.281816	8.281926	
50	8.282145	8.282255	8.282365	8.282475	8.282585	8.282695	8.282805	8.282914	8.283024		
6	0	8.283243	8.283353	8.283463	8.283573	8.283682	8.283791	8.283901	8.284010	8.284120	
	10	8.284339	8.284448	8.284557	8.284667	8.284776	8.284885	8.284994	8.285104	8.285213	
	20	8.285431	8.285540	8.285649	8.285758	8.285867	8.285976	8.286085	8.286194	8.286303	
	30	8.286521	8.286630	8.286738	8.286847	8.286956	8.287065	8.287173	8.287282	8.287391	
	40	8.287608	8.287716	8.287825	8.287933	8.288042	8.288150	8.288259	8.288367	8.288475	
50	8.288602	8.288700	8.288808	8.288917	8.289025	8.289133	8.289241	8.289349	8.289457		
7	0	8.289773	8.289881	8.289989	8.290097	8.290205	8.290313	8.290421	8.290529	8.290637	
	10	8.290852	8.290960	8.291068	8.291175	8.291283	8.291391	8.291498	8.291606	8.291713	
	20	8.291929	8.292036	8.292143	8.292251	8.292358	8.292466	8.292573	8.292680	8.292788	
	30	8.293002	8.293109	8.293216	8.293324	8.293431	8.293538	8.293645	8.293752	8.293859	
	40	8.294073	8.294180	8.294287	8.294394	8.294501	8.294607	8.294714	8.294821	8.294928	
50	8.295141	8.295248	8.295354	8.295461	8.295568	8.295674	8.295781	8.295887	8.295994		
8	0	8.296207	8.296313	8.296420	8.296526	8.296632	8.296739	8.296845	8.296951	8.297057	
	10	8.297270	8.297376	8.297482	8.297588	8.297694	8.297800	8.297906	8.298012	8.298118	
	20	8.298330	8.298436	8.298542	8.298648	8.298754	8.298859	8.298965	8.299071	8.299177	
	30	8.299388	8.299494	8.299599	8.299705	8.299810	8.299916	8.300021	8.300127	8.300232	
	40	8.300443	8.300549	8.300654	8.300759	8.300865	8.300970	8.301075	8.301180	8.301286	
50	8.301496	8.301601	8.301706	8.301811	8.301916	8.302021	8.302126	8.302231	8.302336		
9	0	8.302546	8.302651	8.302756	8.302861	8.302965	8.303070	8.303175	8.303280	8.303384	
	10	8.303594	8.303698	8.303803	8.303908	8.304012	8.304117	8.304221	8.304326	8.304430	
	20	8.304639	8.304743	8.304848	8.304952	8.305056	8.305160	8.305265	8.305369	8.305473	
	30	8.305681	8.305786	8.305890	8.305994	8.306098	8.306202	8.306306	8.306410	8.306514	
	40	8.306721	8.306825	8.306929	8.307033	8.307137	8.307241	8.307344	8.307448	8.307552	
50	8.307759	8.307863	8.307966	8.308070	8.308173	8.308277	8.308380	8.308484	8.308587		
Minutes		10"	9"	8"	7"	6"	5"	4"	3"	2"	
Seconds		Co-sine of 88 degrees, or Sine of 178 degrees.									

LOGARITHMIC SINES.

Sine of 1 degree, or Co-sine of 91 degrees.										Seconds
	1"	2"	3"	4"	5"	6"	7"	8"	9"	Minutes
794	8.308898	8.309001	8.309104	8.309208	8.309311	8.309414	8.309517	8.309621	8.309724	50
827	8.309930	8.310033	8.310136	8.310239	8.310342	8.310445	8.310548	8.310651	8.310754	50
857	8.310660	8.311063	8.311166	8.311268	8.311371	8.311474	8.311577	8.311679	8.311782	30
885	8.311987	8.312090	8.312193	8.312295	8.312398	8.312500	8.312603	8.312705	8.312808	20
910	8.313013	8.313115	8.313217	8.313320	8.313422	8.313524	8.313626	8.313729	8.313831	10
933	8.314035	8.314137	8.314240	8.314342	8.314444	8.314546	8.314648	8.314750	8.314852	04
954	8.315056	8.315157	8.315259	8.315361	8.315463	8.315565	8.315667	8.315768	8.315870	50
972	8.316073	8.316175	8.316277	8.316378	8.316480	8.316582	8.316683	8.316785	8.316886	50
988	8.317089	8.317190	8.317292	8.317393	8.317495	8.317596	8.317697	8.317798	8.317900	30
001	8.318102	8.318203	8.318304	8.318406	8.318507	8.318608	8.318709	8.318810	8.318911	20
012	8.319113	8.319214	8.319315	8.319416	8.319517	8.319617	8.319718	8.319819	8.319920	10
021	8.320121	8.320222	8.320323	8.320423	8.320524	8.320625	8.320725	8.320826	8.320926	04
027	8.321127	8.321228	8.321328	8.321429	8.321529	8.321630	8.321730	8.321830	8.321931	50
031	8.322131	8.322231	8.322332	8.322432	8.322532	8.322632	8.322732	8.322832	8.322933	40
033	8.323133	8.323233	8.323333	8.323433	8.323533	8.323633	8.323732	8.323832	8.323932	30
032	8.324132	8.324232	8.324331	8.324431	8.324531	8.324631	8.324730	8.324830	8.324929	20
029	8.325129	8.325228	8.325328	8.325427	8.325527	8.325626	8.325726	8.325825	8.325924	10
024	8.326123	8.326223	8.326322	8.326421	8.326520	8.326620	8.326719	8.326818	8.326917	04
016	8.327116	8.327215	8.327314	8.327413	8.327512	8.327611	8.327710	8.327809	8.327908	50
007	8.328106	8.328204	8.328303	8.328402	8.328501	8.328600	8.328698	8.328797	8.328896	40
995	8.329093	8.329192	8.329291	8.329389	8.329488	8.329586	8.329685	8.329783	8.329882	30
980	8.330097	8.330177	8.330276	8.330374	8.330472	8.330571	8.330669	8.330767	8.330866	20
964	8.331062	8.331160	8.331258	8.331357	8.331455	8.331553	8.331651	8.331749	8.331847	10
945	8.332043	8.332141	8.332239	8.332337	8.332435	8.332533	8.332631	8.332729	8.332827	04
924	8.333022	8.333120	8.333218	8.333315	8.333413	8.333511	8.333608	8.333706	8.333804	50
901	8.333999	8.334096	8.334194	8.334291	8.334389	8.334486	8.334584	8.334681	8.334779	40
876	8.334973	8.335071	8.335168	8.335265	8.335362	8.335460	8.335557	8.335654	8.335751	30
848	8.335946	8.336043	8.336140	8.336237	8.336334	8.336431	8.336528	8.336625	8.336722	20
819	8.336916	8.337013	8.337109	8.337206	8.337303	8.337400	8.337497	8.337593	8.337690	10
787	8.337884	8.337980	8.338077	8.338174	8.338270	8.338367	8.338463	8.338560	8.338656	04
753	8.338849	8.338946	8.339042	8.339139	8.339235	8.339332	8.339428	8.339524	8.339621	50
717	8.339813	8.339909	8.340006	8.340102	8.340198	8.340294	8.340390	8.340486	8.340583	40
679	8.340775	8.340871	8.340967	8.341063	8.341159	8.341255	8.341351	8.341446	8.341542	30
638	8.341734	8.341830	8.341926	8.342021	8.342117	8.342213	8.342309	8.342404	8.342500	20
596	8.342691	8.342787	8.342883	8.342978	8.343074	8.343169	8.343265	8.343360	8.343456	10
551	8.343647	8.343742	8.343837	8.343933	8.344028	8.344123	8.344219	8.344314	8.344409	04
504	8.344600	8.344695	8.344790	8.344885	8.344980	8.345075	8.345170	8.345266	8.345361	50
456	8.345551	8.345646	8.345741	8.345835	8.345930	8.346025	8.346120	8.346215	8.346310	40
405	8.346500	8.346594	8.346689	8.346784	8.346878	8.346973	8.347068	8.347163	8.347257	30
352	8.347446	8.347541	8.347635	8.347730	8.347825	8.347919	8.348013	8.348108	8.348202	20
297	8.348391	8.348485	8.348580	8.348674	8.348768	8.348863	8.348957	8.349051	8.349145	10
240	8.349334	8.349428	8.349522	8.349616	8.349710	8.349804	8.349899	8.349993	8.350087	04
181	8.350275	8.350369	8.350462	8.350556	8.350650	8.350744	8.350838	8.350932	8.351026	50
119	8.351213	8.351307	8.351401	8.351494	8.351588	8.351682	8.351775	8.351869	8.351963	40
56	8.352150	8.352243	8.352337	8.352430	8.352524	8.352617	8.352711	8.352804	8.352898	30
91	8.353084	8.353178	8.353271	8.353364	8.353458	8.353551	8.353644	8.353737	8.353831	20
24	8.354017	8.354110	8.354203	8.354296	8.354390	8.354483	8.354576	8.354669	8.354762	10
55	8.354948	8.355041	8.355134	8.355226	8.355319	8.355412	8.355505	8.355598	8.355691	04
84	8.355876	8.355969	8.356062	8.356154	8.356247	8.356340	8.356432	8.356525	8.356618	50
10	8.356803	8.356895	8.356988	8.357081	8.357173	8.357265	8.357358	8.357450	8.357543	40
35	8.357728	8.357820	8.357912	8.358005	8.358097	8.358189	8.358281	8.358374	8.358466	30
58	8.358650	8.358742	8.358835	8.358927	8.359019	8.359111	8.359203	8.359295	8.359387	20
79	8.359571	8.359663	8.359755	8.359847	8.359939	8.360031	8.360123	8.360214	8.360306	10
98	8.360490	8.360582	8.360673	8.360765	8.360857	8.360948	8.361040	8.361132	8.361223	04
115	8.361407	8.361498	8.361590	8.361681	8.361773	8.361864	8.361956	8.362047	8.362139	50
130	8.362322	8.362413	8.362504	8.362596	8.362687	8.362778	8.362870	8.362961	8.363052	40
143	8.363235	8.363326	8.363417	8.363508	8.363599	8.363690	8.363781	8.363872	8.363964	30
155	8.364145	8.364237	8.364328	8.364419	8.364510	8.364600	8.364691	8.364782	8.364873	20
164	8.365055	8.365146	8.365236	8.365327	8.365418	8.365509	8.365599	8.365690	8.365781	10
171	8.365962	8.366053	8.366143	8.366234	8.366324	8.366415	8.366505	8.366596	8.366686	04
	9"	8"	7"	6"	5"	4"	3"	2"	1"	
Co-sine of 88 degrees, or Sine of 178 degrees.										Seconds
	1"	2"	3"	4"	5"	6"	7"	8"	9"	Minutes

LOGARITHMIC SINES.

		Sine of 1 degree, or Co-sine of 91 degrees.											
Minutes Seconds		0'	1'	2'	3'	4'	5'	6'	7'	8'			
20	0	8.366777	8.366867	8.366958	8.367048	8.367139	8.367229	8.367319	8.367410	8.367500			
10	8.367681	8.367771	8.367861	8.367951	8.368042	8.368132	8.368222	8.368312	8.368402	8.368492			
20	8.368582	8.368673	8.368763	8.368853	8.368943	8.369033	8.369123	8.369213	8.369303	8.369393			
30	8.369483	8.369572	8.369662	8.369752	8.369842	8.369932	8.370021	8.370111	8.370201	8.370291			
40	8.370380	8.370470	8.370560	8.370649	8.370739	8.370829	8.370918	8.371008	8.371098	8.371188			
50	8.371277	8.371366	8.371456	8.371545	8.371635	8.371724	8.371813	8.371903	8.371993	8.372083			
21	0	8.372171	8.372260	8.372350	8.372439	8.372528	8.372617	8.372707	8.372796	8.372885			
10	8.373064	8.373153	8.373242	8.373331	8.373420	8.373509	8.373598	8.373687	8.373776	8.373865			
20	8.373954	8.374043	8.374132	8.374221	8.374310	8.374399	8.374488	8.374577	8.374666	8.374755			
30	8.374843	8.374932	8.375021	8.375109	8.375198	8.375287	8.375376	8.375464	8.375553	8.375642			
40	8.375730	8.375819	8.375907	8.375996	8.376084	8.376173	8.376262	8.376350	8.376438	8.376527			
50	8.376615	8.376704	8.376792	8.376881	8.376969	8.377057	8.377146	8.377234	8.377322	8.377411			
22	0	8.377499	8.377587	8.377675	8.377764	8.377852	8.377940	8.378028	8.378116	8.378204			
10	8.378380	8.378468	8.378557	8.378645	8.378733	8.378821	8.378909	8.378997	8.379085	8.379173			
20	8.379260	8.379348	8.379436	8.379524	8.379612	8.379700	8.379787	8.379875	8.379963	8.380051			
30	8.380138	8.380226	8.380314	8.380402	8.380490	8.380577	8.380665	8.380752	8.380840	8.380928			
40	8.381015	8.381102	8.381190	8.381277	8.381365	8.381452	8.381540	8.381627	8.381715	8.381803			
50	8.381889	8.381977	8.382064	8.382151	8.382239	8.382326	8.382413	8.382500	8.382588	8.382675			
23	0	8.382762	8.382849	8.382936	8.383024	8.383111	8.383198	8.383285	8.383372	8.383459			
10	8.383633	8.383720	8.383807	8.383894	8.383981	8.384068	8.384155	8.384242	8.384329	8.384416			
20	8.384502	8.384589	8.384676	8.384763	8.384850	8.384936	8.385023	8.385110	8.385197	8.385284			
30	8.385370	8.385457	8.385543	8.385630	8.385716	8.385803	8.385890	8.385976	8.386063	8.386149			
40	8.386328	8.386415	8.386502	8.386589	8.386675	8.386762	8.386849	8.386935	8.387022	8.387109			
50	8.387100	8.387186	8.387272	8.387359	8.387445	8.387531	8.387617	8.387704	8.387790	8.387877			
24	0	8.387962	8.388048	8.388135	8.388221	8.388307	8.388393	8.388479	8.388565	8.388651			
10	8.388823	8.388909	8.388995	8.389081	8.389167	8.389253	8.389338	8.389424	8.389510	8.389596			
20	8.389682	8.389768	8.389853	8.389939	8.390025	8.390111	8.390196	8.39028	8.390366	8.390452			
30	8.390539	8.390625	8.390710	8.390796	8.390882	8.390967	8.391053	8.391138	8.391224	8.391310			
40	8.391395	8.391480	8.391566	8.391651	8.391736	8.391822	8.391907	8.391993	8.392078	8.392163			
50	8.392249	8.392334	8.392419	8.392504	8.392590	8.392675	8.392760	8.392845	8.392931	8.393016			
25	0	8.393101	8.393186	8.393271	8.393356	8.393441	8.393526	8.393611	8.393696	8.393781			
10	8.393951	8.394036	8.394121	8.394206	8.394291	8.394376	8.394461	8.394546	8.394631	8.394716			
20	8.394800	8.394885	8.394970	8.395055	8.395139	8.395224	8.395309	8.395394	8.395478	8.395563			
30	8.395648	8.395732	8.395817	8.395901	8.395986	8.396071	8.396155	8.396240	8.396324	8.396409			
40	8.396493	8.396578	8.396662	8.396746	8.396831	8.396915	8.397000	8.397084	8.397168	8.397253			
50	8.397337	8.397421	8.397506	8.397590	8.397674	8.397758	8.397843	8.397927	8.398011	8.398096			
26	0	8.398179	8.398263	8.398348	8.398432	8.398516	8.398600	8.398684	8.398768	8.398852			
10	8.399020	8.399104	8.399188	8.399272	8.399356	8.399440	8.399524	8.399607	8.399691	8.399775			
20	8.399859	8.399943	8.400027	8.400110	8.400194	8.400278	8.400362	8.400445	8.400529	8.400613			
30	8.400696	8.400780	8.400864	8.400947	8.401031	8.401115	8.401198	8.401282	8.401365	8.401449			
40	8.401532	8.401616	8.401699	8.401783	8.401866	8.401950	8.402033	8.402116	8.402200	8.402283			
50	8.402366	8.402450	8.402533	8.402616	8.402700	8.402783	8.402866	8.402949	8.403033	8.403116			
27	0	8.403199	8.403282	8.403365	8.403449	8.403532	8.403615	8.403698	8.403781	8.403864			
10	8.404030	8.404113	8.404196	8.404279	8.404362	8.404445	8.404528	8.404611	8.404694	8.404777			
20	8.404859	8.404942	8.405025	8.405108	8.405191	8.405274	8.405356	8.405439	8.405522	8.405605			
30	8.405687	8.405770	8.405853	8.405935	8.406018	8.406101	8.406183	8.406266	8.406348	8.406431			
40	8.406514	8.406597	8.406679	8.406761	8.406844	8.406926	8.407009	8.407091	8.407173	8.407256			
50	8.407338	8.407421	8.407503	8.407585	8.407668	8.407750	8.407832	8.407915	8.407997	8.408080			
28	0	8.408161	8.408244	8.408326	8.408408	8.408490	8.408572	8.408655	8.408737	8.408819			
10	8.408983	8.409065	8.409147	8.409229	8.409311	8.409393	8.409475	8.409557	8.409639	8.409721			
20	8.409803	8.409885	8.409967	8.410049	8.410131	8.410212	8.410294	8.410376	8.410458	8.410540			
30	8.410621	8.410703	8.410785	8.410867	8.410948	8.411030	8.411112	8.411193	8.411275	8.411357			
40	8.411438	8.411520	8.411602	8.411683	8.411765	8.411846	8.411928	8.412009	8.412091	8.412173			
50	8.412254	8.412335	8.412417	8.412498	8.412580	8.412661	8.412742	8.412824	8.412905	8.412987			
29	0	8.413068	8.413149	8.413230	8.413312	8.413393	8.413474	8.413555	8.413636	8.413718			
10	8.413880	8.413961	8.414042	8.414123	8.414205	8.414286	8.414367	8.414448	8.414529	8.414610			
20	8.414691	8.414772	8.414853	8.414934	8.415015	8.415096	8.415177	8.415258	8.415339	8.415420			
30	8.415500	8.415581	8.415662	8.415743	8.415823	8.415904	8.415985	8.416066	8.416147	8.416228			
40	8.416308	8.416389	8.416469	8.416550	8.416631	8.416711	8.416792	8.416873	8.416953	8.417034			
50	8.417114	8.417195	8.417275	8.417356	8.417436	8.417517	8.417597	8.417678	8.417758	8.417839			
		10'	9'	8'	7'	6'	5'	4'	3'	2'			
Minutes Seconds		Co-sine of 88 degrees, or Sine of 178 degrees.											

LOGARITHMIC SINES.

Sine of 1 degree, or Co-sine of 91 degrees.										Seconds	Minutes
1"	2"	3"	4"	5"	6"	7"	8"	9"			
98.417999	8.418080	8.418160	8.418241	8.418321	8.418401	8.418482	8.418562	8.418642		50	
28.418803	8.418883	8.418963	8.419043	8.419123	8.419204	8.419284	8.419364	8.419444		40	
48.419604	8.419684	8.419764	8.419845	8.419925	8.420005	8.420085	8.420165	8.420245		30	
58.420405	8.420484	8.420564	8.420644	8.420724	8.420804	8.420884	8.420964	8.421044		20	
38.421203	8.421283	8.421363	8.421443	8.421522	8.421602	8.421682	8.421762	8.421841		10	
18.422001	8.422080	8.422160	8.422239	8.422319	8.422399	8.422478	8.422558	8.422637		0 20	
78.422796	8.422876	8.422955	8.423035	8.423114	8.423194	8.423273	8.423353	8.423432		50	
18.423591	8.423670	8.423749	8.423829	8.423908	8.423987	8.424067	8.424146	8.424225		40	
48.424384	8.424463	8.424542	8.424621	8.424700	8.424780	8.424859	8.424938	8.425017		30	
68.425175	8.425254	8.425333	8.425412	8.425491	8.425570	8.425649	8.425728	8.425807		20	
88.425965	8.426044	8.426123	8.426202	8.426281	8.426360	8.426438	8.426517	8.426596		10	
58.426754	8.426832	8.426911	8.426990	8.427069	8.427147	8.427226	8.427305	8.427383		0 28	
28.427541	8.427619	8.427698	8.427777	8.427855	8.427934	8.428012	8.428091	8.428169		50	
88.428327	8.428405	8.428484	8.428562	8.428640	8.428719	8.428797	8.428876	8.428954		40	
28.429111	8.429189	8.429268	8.429346	8.429424	8.429502	8.429581	8.429659	8.429737		30	
58.429894	8.429972	8.430050	8.430128	8.430206	8.430285	8.430363	8.430441	8.430519		20	
78.430675	8.430753	8.430831	8.430909	8.430987	8.431065	8.431143	8.431221	8.431299		10	
78.431455	8.431533	8.431611	8.431689	8.431767	8.431845	8.431923	8.432000	8.432078		0 27	
68.432234	8.432312	8.432390	8.432467	8.432545	8.432623	8.432700	8.432778	8.432856		50	
48.433011	8.433089	8.433167	8.433244	8.433322	8.433399	8.433477	8.433554	8.433632		40	
68.433787	8.433865	8.433942	8.434020	8.434097	8.434175	8.434252	8.434329	8.434407		30	
88.434562	8.434639	8.434716	8.434794	8.434871	8.434948	8.435026	8.435103	8.435180		20	
78.435335	8.435412	8.435489	8.435566	8.435644	8.435721	8.435798	8.435875	8.435952		10	
58.436106	8.436184	8.436261	8.436338	8.436415	8.436492	8.436569	8.436646	8.436723		0 36	
38.436877	8.436954	8.437031	8.437108	8.437185	8.437262	8.437338	8.437415	8.437492		50	
18.437646	8.437723	8.437800	8.437876	8.437953	8.438030	8.438107	8.438183	8.438260		40	
18.438414	8.438490	8.438567	8.438644	8.438720	8.438797	8.438873	8.438950	8.439027		30	
38.439180	8.439256	8.439333	8.439409	8.439486	8.439562	8.439639	8.439715	8.439792		20	
58.439945	8.440021	8.440098	8.440174	8.440250	8.440327	8.440403	8.440479	8.440556		10	
78.440708	8.440784	8.440861	8.440937	8.441013	8.441090	8.441166	8.441242	8.441318		0 25	
18.441471	8.441547	8.441623	8.441699	8.441775	8.441851	8.441927	8.442003	8.442080		50	
68.442232	8.442308	8.442384	8.442460	8.442536	8.442612	8.442688	8.442763	8.442839		40	
58.442991	8.443067	8.443143	8.443219	8.443295	8.443370	8.443446	8.443522	8.443598		30	
48.443749	8.443825	8.443901	8.443977	8.444052	8.444128	8.444204	8.444279	8.444355		20	
18.444506	8.444582	8.444658	8.444733	8.444809	8.444884	8.444960	8.445035	8.445111		10	
78.445262	8.445338	8.445413	8.445488	8.445564	8.445639	8.445715	8.445790	8.445866		0 24	
18.446016	8.446092	8.446167	8.446242	8.446318	8.446393	8.446468	8.446544	8.446619		50	
48.446769	8.446845	8.446920	8.446995	8.447070	8.447145	8.447221	8.447296	8.447371		40	
68.447521	8.447596	8.447671	8.447746	8.447821	8.447896	8.447971	8.448046	8.448121		30	
88.448271	8.448346	8.448421	8.448496	8.448571	8.448646	8.448721	8.448796	8.448871		20	
68.449021	8.449095	8.449170	8.449245	8.449320	8.449395	8.449469	8.449544	8.449619		10	
48.449768	8.449843	8.449918	8.449992	8.450067	8.450142	8.450216	8.450291	8.450366		0 23	
28.450515	8.450589	8.450664	8.450739	8.450813	8.450888	8.450962	8.451037	8.451111		50	
68.451260	8.451335	8.451409	8.451483	8.451558	8.451632	8.451707	8.451781	8.451855		40	
88.452004	8.452078	8.452153	8.452227	8.452301	8.452376	8.452450	8.452524	8.452598		30	
38.452747	8.452821	8.452895	8.452969	8.453043	8.453118	8.453192	8.453266	8.453340		20	
48.453488	8.453562	8.453636	8.453710	8.453784	8.453858	8.453932	8.454006	8.454080		10	
68.454228	8.454302	8.454376	8.454450	8.454524	8.454598	8.454672	8.454746	8.454820		0 22	
18.454967	8.455041	8.455115	8.455189	8.455262	8.455336	8.455410	8.455484	8.455557		50	
18.455795	8.455869	8.455943	8.456017	8.456090	8.456164	8.456238	8.456311	8.456385		40	
38.456441	8.456515	8.456588	8.456662	8.456735	8.456809	8.456883	8.456956	8.457030		30	
58.457176	8.457250	8.457323	8.457397	8.457470	8.457544	8.457617	8.457690	8.457764		20	
78.457910	8.457984	8.458057	8.458130	8.458204	8.458277	8.458350	8.458423	8.458497		10	
98.458643	8.458716	8.458789	8.458863	8.458936	8.459009	8.459082	8.459155	8.459228		0 21	
18.459374	8.459447	8.459521	8.459594	8.459667	8.459740	8.459813	8.459886	8.459959		50	
28.460105	8.460178	8.460251	8.460323	8.460396	8.460469	8.460542	8.460615	8.460688		40	
48.460834	8.460906	8.460979	8.461052	8.461125	8.461198	8.461270	8.461343	8.461416		30	
68.461561	8.461634	8.461707	8.461779	8.461852	8.461925	8.461997	8.462070	8.462143		20	
88.462288	8.462360	8.462433	8.462506	8.462578	8.462651	8.462723	8.462796	8.462868		10	
58.463013	8.463086	8.463158	8.463231	8.463303	8.463375	8.463448	8.463520	8.463593		0 20	
9"	8"	7"	6"	5"	4"	3"	2"	1"	Co-sine of 88 degrees, or Sine of 178 degrees.		

LOGARITHMIC SINES.

		Sine of 1 degree, or Co-sine of 91 degrees.								
Minutes	Seconds	0"	1"	2"	3"	4"	5"	6"	7"	8"
		0"	1"	2"	3"	4"	5"	6"	7"	8"
40	0	8.463665	8.463737	8.463810	8.463882	8.463954	8.464027	8.464099	8.464171	8.464243
40	10	8.464388	8.464460	8.464532	8.464605	8.464677	8.464749	8.464821	8.464893	8.464965
40	20	8.465110	8.465182	8.465254	8.465326	8.465398	8.465470	8.465542	8.465614	8.465686
40	30	8.465830	8.465902	8.465974	8.466046	8.466118	8.466190	8.466262	8.466334	8.466406
40	40	8.466550	8.466622	8.466694	8.466766	8.466837	8.466909	8.466981	8.467053	8.467124
40	50	8.467268	8.467340	8.467412	8.467483	8.467555	8.467627	8.467698	8.467770	8.467842
41	0	8.467958	8.468030	8.468102	8.468174	8.468246	8.468317	8.468389	8.468461	8.468533
41	10	8.468701	8.468772	8.468844	8.468915	8.468987	8.469058	8.469130	8.469201	8.469273
41	20	8.469416	8.469487	8.469558	8.469630	8.469701	8.469773	8.469844	8.469915	8.469987
41	30	8.470129	8.470200	8.470272	8.470343	8.470414	8.470485	8.470557	8.470628	8.470699
41	40	8.470841	8.470913	8.470984	8.471055	8.471126	8.471197	8.471268	8.471339	8.471410
41	50	8.471553	8.471624	8.471695	8.471766	8.471837	8.471908	8.471979	8.472050	8.472121
42	0	8.472263	8.472334	8.472404	8.472475	8.472546	8.472617	8.472688	8.472759	8.472830
42	10	8.472971	8.473042	8.473113	8.473184	8.473255	8.473325	8.473396	8.473467	8.473538
42	20	8.473797	8.473868	8.473938	8.474009	8.474079	8.474150	8.474221	8.474291	8.474362
42	30	8.474586	8.474656	8.474727	8.474797	8.474868	8.474938	8.475009	8.475079	8.475150
42	40	8.475371	8.475441	8.475512	8.475582	8.475653	8.475723	8.475794	8.475864	8.475935
42	50	8.476155	8.476225	8.476296	8.476366	8.476437	8.476507	8.476578	8.476648	8.476719
43	0	8.476949	8.477019	8.477089	8.477159	8.477229	8.477299	8.477369	8.477439	8.477509
43	10	8.477720	8.477790	8.477860	8.477930	8.477999	8.478069	8.478139	8.478209	8.478279
43	20	8.478501	8.478571	8.478641	8.478711	8.478781	8.478851	8.478921	8.478991	8.479061
43	30	8.479362	8.479432	8.479502	8.479572	8.479642	8.479712	8.479782	8.479852	8.479922
43	40	8.479993	8.480063	8.480133	8.480203	8.480273	8.480343	8.480413	8.480483	8.480553
43	50	8.480724	8.480794	8.480864	8.480934	8.481004	8.481074	8.481144	8.481214	8.481284
44	0	8.481535	8.481605	8.481675	8.481745	8.481815	8.481885	8.481955	8.482025	8.482095
44	10	8.482366	8.482436	8.482506	8.482576	8.482646	8.482716	8.482786	8.482856	8.482926
44	20	8.483227	8.483297	8.483367	8.483437	8.483507	8.483577	8.483647	8.483717	8.483787
44	30	8.484088	8.484158	8.484228	8.484298	8.484368	8.484438	8.484508	8.484578	8.484648
44	40	8.484949	8.485019	8.485089	8.485159	8.485229	8.485299	8.485369	8.485439	8.485509
44	50	8.485810	8.485880	8.485950	8.486020	8.486090	8.486160	8.486230	8.486300	8.486370
45	0	8.486671	8.486741	8.486811	8.486881	8.486951	8.487021	8.487091	8.487161	8.487231
45	10	8.487532	8.487602	8.487672	8.487742	8.487812	8.487882	8.487952	8.488022	8.488092
45	20	8.488393	8.488463	8.488533	8.488603	8.488673	8.488743	8.488813	8.488883	8.488953
45	30	8.489264	8.489334	8.489404	8.489474	8.489544	8.489614	8.489684	8.489754	8.489824
45	40	8.489935	8.490005	8.490075	8.490145	8.490215	8.490285	8.490355	8.490425	8.490495
45	50	8.490796	8.490866	8.490936	8.491006	8.491076	8.491146	8.491216	8.491286	8.491356
46	0	8.491657	8.491727	8.491797	8.491867	8.491937	8.492007	8.492077	8.492147	8.492217
46	10	8.492518	8.492588	8.492658	8.492728	8.492798	8.492868	8.492938	8.493008	8.493078
46	20	8.493379	8.493449	8.493519	8.493589	8.493659	8.493729	8.493799	8.493869	8.493939
46	30	8.494240	8.494310	8.494380	8.494450	8.494520	8.494590	8.494660	8.494730	8.494800
46	40	8.495101	8.495171	8.495241	8.495311	8.495381	8.495451	8.495521	8.495591	8.495661
46	50	8.495962	8.496032	8.496102	8.496172	8.496242	8.496312	8.496382	8.496452	8.496522
47	0	8.496823	8.496893	8.496963	8.497033	8.497103	8.497173	8.497243	8.497313	8.497383
47	10	8.497744	8.497814	8.497884	8.497954	8.498024	8.498094	8.498164	8.498234	8.498304
47	20	8.498605	8.498675	8.498745	8.498815	8.498885	8.498955	8.499025	8.499095	8.499165
47	30	8.499466	8.499536	8.499606	8.499676	8.499746	8.499816	8.499886	8.499956	8.500026
47	40	8.500327	8.500397	8.500467	8.500537	8.500607	8.500677	8.500747	8.500817	8.500887
47	50	8.501188	8.501258	8.501328	8.501398	8.501468	8.501538	8.501608	8.501678	8.501748
48	0	8.502049	8.502119	8.502189	8.502259	8.502329	8.502399	8.502469	8.502539	8.502609
48	10	8.502910	8.502980	8.503050	8.503120	8.503190	8.503260	8.503330	8.503400	8.503470
48	20	8.503771	8.503841	8.503911	8.503981	8.504051	8.504121	8.504191	8.504261	8.504331
48	30	8.504632	8.504702	8.504772	8.504842	8.504912	8.504982	8.505052	8.505122	8.505192
48	40	8.505493	8.505563	8.505633	8.505703	8.505773	8.505843	8.505913	8.505983	8.506053
48	50	8.506354	8.506424	8.506494	8.506564	8.506634	8.506704	8.506774	8.506844	8.506914
49	0	8.507215	8.507285	8.507355	8.507425	8.507495	8.507565	8.507635	8.507705	8.507775
49	10	8.508076	8.508146	8.508216	8.508286	8.508356	8.508426	8.508496	8.508566	8.508636
49	20	8.508937	8.509007	8.509077	8.509147	8.509217	8.509287	8.509357	8.509427	8.509497
49	30	8.509798	8.509868	8.509938	8.510008	8.510078	8.510148	8.510218	8.510288	8.510358
49	40	8.510659	8.510729	8.510799	8.510869	8.510939	8.511009	8.511079	8.511149	8.511219
49	50	8.511520	8.511590	8.511660	8.511730	8.511800	8.511870	8.511940	8.512010	8.512080
50	0	8.512381	8.512451	8.512521	8.512591	8.512661	8.512731	8.512801	8.512871	8.512941
50	10	8.513242	8.513312	8.513382	8.513452	8.513522	8.513592	8.513662	8.513732	8.513802
50	20	8.514103	8.514173	8.514243	8.514313	8.514383	8.514453	8.514523	8.514593	8.514663
50	30	8.514964	8.515034	8.515104	8.515174	8.515244	8.515314	8.515384	8.515454	8.515524
50	40	8.515825	8.515895	8.515965	8.516035	8.516105	8.516175	8.516245	8.516315	8.516385
50	50	8.516746	8.516816	8.516886	8.516956	8.517026	8.517096	8.517166	8.517236	8.517306
50	60	8.517667	8.517737	8.517807	8.517877	8.517947	8.518017	8.518087	8.518157	8.518227
50	70	8.518528	8.518598	8.518668	8.518738	8.518808	8.518878	8.518948	8.519018	8.519088
50	80	8.519389	8.519459	8.519529	8.519599	8.519669	8.519739	8.519809	8.519879	8.519949
50	90	8.520250	8.520320	8.520390	8.520460	8.520530	8.520600	8.520670	8.520740	8.520810
50	100	8.521121	8.521191	8.521261	8.521331	8.521401	8.521471	8.521541	8.521611	8.521681
50	110	8.521992	8.522062	8.522132	8.522202	8.522272	8.522342	8.522412	8.522482	8.522552
50	120	8.522853	8.522923	8.522993	8.523063	8.523133	8.523203	8.523273	8.523343	8.523413
50	130	8.523714	8.523784	8.523854	8.523924	8.523994	8.524064	8.524134	8.524204	8.524274
50	140	8.524575	8.524645	8.524715	8.524785	8.524855	8.524925	8.524995	8.525065	8.525135
50	150	8.525436	8.525506	8.525576	8.525646	8.525716	8.525786	8.525856	8.525926	8.525996
50	160	8.526297	8.526367	8.526437	8.526507	8.526577	8.526647	8.526717	8.526787	8.526857
50	170	8.527158	8.527228	8.527298	8.527368	8.527438	8.527508	8.527578	8.527648	8.527718
50	180	8.528019	8.528089	8.528159	8.528229	8.528299	8.528369	8.528439	8.528509	8.528579
50	190	8.528880	8.528950	8.529020	8.529090	8.529160	8.529230	8.529300	8.529370	8.529440
50	200	8.529741	8.529811	8.529881	8.529951	8.530021	8.530091	8.530161	8.530231	8.530301
50	210	8.530602	8.530672	8.530742	8.530812	8.530882	8.530952	8.531022	8.531092	8.531162
50	220	8.531463	8.531533	8.531603	8.531673	8.531743	8.531813	8.531883	8.531953	8.532023
50	230	8.532324	8.532394	8.532464	8.532534	8.532604	8.532674	8.532744	8.532814	8.532884
50	240	8.533185	8.533255	8.533325	8.533395	8.533465	8.533535	8.533605	8.533675	8.533745
50	250	8.534046	8.534116	8.534186	8.534256	8.534326	8.534396	8.534466	8.534536	8.534606
50	260	8.534907	8.534977	8.535047	8.535117	8.535187	8.535257	8.535327	8.535397	8.535467
50	270	8.535768	8.535838	8.535908	8.535978	8.536048	8.536118	8.536188	8.536258</	

LOGARITHMIC SINES.

Sine of 1 degree, or Co-sine of 91 degrees.										Seconds	Minutes
0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
8.505045	8.505111	8.505176	8.505242	8.505308	8.505374	8.505439	8.505505	8.505571	8.505636	50	
8.505702	8.505768	8.505833	8.505899	8.505965	8.506030	8.506096	8.506162	8.506227	8.506293	40	
8.506358	8.506424	8.506489	8.506555	8.506621	8.506686	8.506752	8.506817	8.506883	8.506948	30	
8.507014	8.507079	8.507145	8.507210	8.507276	8.507341	8.507406	8.507472	8.507537	8.507603	20	
8.507668	8.507733	8.507799	8.507864	8.507929	8.507995	8.508060	8.508125	8.508191	8.508256	10	
8.508321	8.508387	8.508452	8.508517	8.508582	8.508648	8.508713	8.508778	8.508843	8.508908	0	9
8.508974	8.509039	8.509104	8.509169	8.509234	8.509299	8.509365	8.509430	8.509495	8.509560	50	
8.509625	8.509690	8.509755	8.509820	8.509885	8.509950	8.510015	8.510080	8.510145	8.510210	40	
8.510275	8.510340	8.510405	8.510470	8.510535	8.510600	8.510665	8.510730	8.510795	8.510860	30	
8.510925	8.510990	8.511055	8.511120	8.511184	8.511249	8.511314	8.511379	8.511444	8.511509	20	
8.511573	8.511638	8.511703	8.511768	8.511832	8.511897	8.511962	8.512027	8.512091	8.512156	10	
8.512221	8.512286	8.512350	8.512415	8.512480	8.512544	8.512609	8.512674	8.512738	8.512803	0	8
8.512867	8.512932	8.512997	8.513061	8.513126	8.513190	8.513255	8.513319	8.513384	8.513448	50	
8.513513	8.513577	8.513642	8.513706	8.513771	8.513835	8.513900	8.513964	8.514029	8.514093	40	
8.514158	8.514222	8.514286	8.514351	8.514415	8.514479	8.514544	8.514608	8.514673	8.514737	30	
8.514801	8.514865	8.514930	8.514994	8.515058	8.515123	8.515187	8.515251	8.515315	8.515380	20	
8.515444	8.515508	8.515572	8.515636	8.515701	8.515765	8.515829	8.515893	8.515957	8.516021	10	
8.516086	8.516150	8.516214	8.516278	8.516342	8.516406	8.516470	8.516534	8.516598	8.516662	0	7
8.516726	8.516790	8.516854	8.516918	8.516982	8.517046	8.517110	8.517174	8.517238	8.517302	50	
8.517366	8.517430	8.517494	8.517558	8.517622	8.517686	8.517750	8.517814	8.517877	8.517941	40	
8.518005	8.518069	8.518133	8.518197	8.518260	8.518324	8.518388	8.518452	8.518516	8.518579	30	
8.518643	8.518707	8.518771	8.518834	8.518898	8.518962	8.519025	8.519089	8.519153	8.519216	20	
8.519280	8.519344	8.519407	8.519471	8.519535	8.519598	8.519662	8.519726	8.519789	8.519853	10	
8.519916	8.519980	8.520043	8.520107	8.520170	8.520234	8.520297	8.520361	8.520424	8.520488	0	6
8.520551	8.520615	8.520678	8.520742	8.520805	8.520869	8.520932	8.520995	8.521059	8.521122	50	
8.521186	8.521249	8.521312	8.521376	8.521439	8.521502	8.521566	8.521629	8.521692	8.521756	40	
8.521819	8.521882	8.521946	8.522009	8.522072	8.522135	8.522199	8.522262	8.522325	8.522388	30	
8.522451	8.522515	8.522578	8.522641	8.522704	8.522767	8.522830	8.522893	8.522957	8.523020	20	
8.523083	8.523146	8.523209	8.523272	8.523335	8.523398	8.523461	8.523524	8.523587	8.523650	10	
8.523713	8.523776	8.523839	8.523902	8.523965	8.524028	8.524091	8.524154	8.524217	8.524280	0	5
8.524343	8.524406	8.524469	8.524532	8.524595	8.524657	8.524720	8.524783	8.524846	8.524909	50	
8.524972	8.525035	8.525097	8.525160	8.525223	8.525286	8.525349	8.525411	8.525474	8.525537	40	
8.525600	8.525662	8.525725	8.525788	8.525850	8.525913	8.525976	8.526038	8.526101	8.526164	30	
8.526226	8.526289	8.526352	8.526414	8.526477	8.526540	8.526602	8.526665	8.526727	8.526790	20	
8.526852	8.526915	8.526978	8.527040	8.527103	8.527165	8.527228	8.527290	8.527353	8.527415	10	
8.527478	8.527540	8.527602	8.527665	8.527727	8.527790	8.527852	8.527915	8.527977	8.528039	0	4
8.528102	8.528164	8.528226	8.528289	8.528351	8.528414	8.528476	8.528538	8.528600	8.528663	50	
8.528725	8.528787	8.528850	8.528912	8.528974	8.529036	8.529099	8.529161	8.529223	8.529285	40	
8.529347	8.529409	8.529471	8.529534	8.529596	8.529658	8.529720	8.529783	8.529845	8.529907	30	
8.529969	8.530031	8.530093	8.530155	8.530217	8.530279	8.530341	8.530403	8.530465	8.530527	20	
8.530590	8.530652	8.530714	8.530776	8.530838	8.530900	8.530962	8.531024	8.531086	8.531147	10	
8.531209	8.531271	8.531333	8.531395	8.531457	8.531519	8.531581	8.531643	8.531704	8.531766	0	3
8.531828	8.531890	8.531952	8.532014	8.532075	8.532137	8.532199	8.532261	8.532323	8.532384	50	
8.532446	8.532508	8.532570	8.532631	8.532693	8.532755	8.532817	8.532878	8.532940	8.532999	40	
8.533063	8.533125	8.533187	8.533248	8.533310	8.533371	8.533433	8.533495	8.533556	8.533618	30	
8.533679	8.533741	8.533803	8.533864	8.533926	8.533987	8.534049	8.534110	8.534172	8.534233	20	
8.534295	8.534356	8.534418	8.534479	8.534541	8.534602	8.534664	8.534725	8.534786	8.534848	10	
8.534909	8.534971	8.535032	8.535093	8.535155	8.535216	8.535278	8.535339	8.535400	8.535462	0	2
8.535523	8.535584	8.535646	8.535707	8.535768	8.535829	8.535891	8.535952	8.536013	8.536074	50	
8.536136	8.536197	8.536258	8.536319	8.536380	8.536442	8.536503	8.536564	8.536625	8.536686	40	
8.536747	8.536808	8.536870	8.536931	8.536992	8.537053	8.537114	8.537175	8.537236	8.537297	30	
8.537359	8.537420	8.537481	8.537542	8.537603	8.537664	8.537725	8.537786	8.537847	8.537908	20	
8.537969	8.538030	8.538091	8.538152	8.538212	8.538273	8.538334	8.538395	8.538456	8.538517	10	
8.538578	8.538639	8.538700	8.538761	8.538821	8.538882	8.538943	8.539004	8.539065	8.539126	0	1
8.539186	8.539247	8.539308	8.539369	8.539430	8.539490	8.539551	8.539612	8.539673	8.539733	50	
8.539794	8.539855	8.539915	8.539976	8.540037	8.540097	8.540158	8.540219	8.540279	8.540340	40	
8.540401	8.540461	8.540522	8.540583	8.540643	8.540704	8.540764	8.540825	8.540885	8.540946	30	
8.541007	8.541067	8.541128	8.541188	8.541249	8.541309	8.541370	8.541430	8.541491	8.541551	20	
8.541612	8.541672	8.541733	8.541793	8.541853	8.541914	8.541974	8.542035	8.542095	8.542155	10	
8.542216	8.542276	8.542337	8.542397	8.542457	8.542518	8.542578	8.542638	8.542699	8.542759	0	0
10"	9"	8"	7"	6"	5"	4"	3"	2"	1"	Seconds	Minutes
Co-sine of 88 degrees, or Sine of 178 degrees.											

LOGARITHMIC SINES.

Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees.			Seconds	Minutes	Proport. parts.	Minutes	Seconds	Sine of 2 degrees, or Co-sine of 92 degrees.			Seconds
		0"	5"	10"						0"	5"	10"	
0	0	8.542819	8.543120	8.543422	45	1"	60	15	0	8.593948	8.594216	8.594484	45
	15	8.543723	8.544023	8.544324	30	2.	120		15	8.594751	8.595019	8.595286	30
	30	8.544624	8.544924	8.545224	15	3.	180		30	8.595553	8.595820	8.596087	15
	45	8.545524	8.545823	8.546123	0	4.	240		45	8.596353	8.596620	8.596886	0
1	0	8.546422	8.546721	8.547019	45	1 =	60	16	0	8.597152	8.597418	8.597683	45
	15	8.547318	8.547616	8.547914	30	2.	119		15	8.597949	8.598214	8.598480	30
	30	8.548212	8.548510	8.548807	15	3.	179		30	8.598745	8.599010	8.599274	15
	45	8.549104	8.549401	8.549698	0	4.	238		45	8.599539	8.599803	8.600068	0
2	0	8.549995	8.550291	8.550587	45	1 =	59	17	0	8.600332	8.600596	8.600860	45
	15	8.550883	8.551179	8.551475	30	2.	118		15	8.601123	8.601387	8.601650	30
	30	8.551770	8.552066	8.552361	15	3.	177		30	8.601913	8.602176	8.602439	15
	45	8.552655	8.552950	8.553244	0	4.	236		45	8.602702	8.602964	8.603226	0
3	0	8.553539	8.553833	8.554126	45	1 =	59	18	0	8.603489	8.603751	8.604013	45
	15	8.554420	8.554713	8.555007	30	2.	117		15	8.604274	8.604536	8.604797	30
	30	8.555300	8.555593	8.555885	15	3.	176		30	8.605058	8.605319	8.605580	15
	45	8.556177	8.556470	8.556762	0	4.	234		45	8.605841	8.606102	8.606362	0
4	0	8.557054	8.557345	8.557637	45	1 =	58	19	0	8.606623	8.606883	8.607143	45
	15	8.557928	8.558219	8.558510	30	2.	116		15	8.607403	8.607662	8.607922	30
	30	8.558801	8.559091	8.559381	15	3.	174		30	8.608181	8.608440	8.608699	15
	45	8.559671	8.559961	8.560251	0	4.	232		45	8.608958	8.609217	8.609476	0
5	0	8.560540	8.560830	8.561119	45	1 =	58	20	0	8.609734	8.609992	8.610251	45
	15	8.561408	8.561697	8.561985	30	2.	115		15	8.610509	8.610766	8.611024	30
	30	8.562273	8.562561	8.562850	15	3.	173		30	8.611282	8.611539	8.611796	15
	45	8.563137	8.563425	8.563712	0	4.	230		45	8.612053	8.612310	8.612567	0
6	0	8.563999	8.564286	8.564573	45	1 =	57	21	0	8.612824	8.613080	8.613336	45
	15	8.564860	8.565146	8.565433	30	2.	114		15	8.613592	8.613848	8.614104	30
	30	8.565719	8.566005	8.566290	15	3.	171		30	8.614360	8.614616	8.614871	15
	45	8.566576	8.566861	8.567146	0	4.	229		45	8.615126	8.615381	8.615636	0
7	0	8.567431	8.567716	8.568000	45	1 =	57	22	0	8.615891	8.616146	8.616400	45
	15	8.568285	8.568569	8.568853	30	2.	113		15	8.616655	8.616909	8.617163	30
	30	8.569137	8.569420	8.569704	15	3.	170		30	8.617417	8.617670	8.617924	15
	45	8.569987	8.570270	8.570553	0	4.	227		45	8.618177	8.618431	8.618684	0
8	0	8.570836	8.571118	8.571401	45	1 =	56	23	0	8.618937	8.619190	8.619443	45
	15	8.571683	8.571965	8.572247	30	2.	113		15	8.619695	8.619948	8.620200	30
	30	8.572528	8.572810	8.573091	15	3.	169		30	8.620452	8.620704	8.620956	15
	45	8.573372	8.573653	8.573933	0	4.	225		45	8.621207	8.621459	8.621710	0
9	0	8.574214	8.574494	8.574774	45	1 =	56	24	0	8.621962	8.622213	8.622464	45
	15	8.575054	8.575334	8.575614	30	2.	112		15	8.622715	8.622966	8.623216	30
	30	8.575893	8.576172	8.576452	15	3.	167		30	8.623466	8.623716	8.623966	15
	45	8.576730	8.577009	8.577288	0	4.	223		45	8.624216	8.624466	8.624716	0
10	0	8.577566	8.577844	8.578122	45	1 =	55	25	0	8.624965	8.625215	8.625464	45
	15	8.578400	8.578678	8.578955	30	2.	111		15	8.625713	8.625962	8.626211	30
	30	8.579232	8.579509	8.579786	15	3.	166		30	8.626459	8.626708	8.626956	15
	45	8.580063	8.580340	8.580616	0	4.	221		45	8.627205	8.627453	8.627701	0
11	0	8.580892	8.581168	8.581444	45	1 =	55	26	0	8.627948	8.628196	8.628444	45
	15	8.581720	8.581995	8.582271	30	2.	110		15	8.628691	8.628938	8.629185	30
	30	8.582546	8.582821	8.583096	15	3.	165		30	8.629432	8.629679	8.629926	15
	45	8.583370	8.583645	8.583919	0	4.	220		45	8.630172	8.630419	8.630665	0
12	0	8.584193	8.584467	8.584741	45	1 =	55	27	0	8.630911	8.631157	8.631403	45
	15	8.585015	8.585288	8.585561	30	2.	109		15	8.631649	8.631894	8.632140	30
	30	8.585835	8.586107	8.586380	15	3.	164		30	8.632385	8.632630	8.632875	15
	45	8.586653	8.586925	8.587197	0	4.	218		45	8.633120	8.633365	8.633609	0
13	0	8.587469	8.587741	8.588013	45	1 =	54	28	0	8.633854	8.634098	8.634342	45
	15	8.588285	8.588556	8.588827	30	2.	108		15	8.634586	8.634830	8.635074	30
	30	8.589098	8.589369	8.589640	15	3.	162		30	8.635318	8.635561	8.635804	15
	45	8.589910	8.590181	8.590451	0	4.	217		45	8.636048	8.636291	8.636534	0
14	0	8.590721	8.590991	8.591261	45	1 =	54	29	0	8.636776	8.637019	8.637262	45
	15	8.591530	8.591799	8.592069	30	2.	108		15	8.637504	8.637746	8.637988	30
	30	8.592338	8.592607	8.592875	15	3.	161		30	8.638230	8.638472	8.638714	15
	45	8.593144	8.593412	8.593680	0	4.	215		45	8.638956	8.639197	8.639438	0
Minutes	Seconds	15"	10"	5"	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15"	10"	5"	Seconds
		Co-sine of 87 degrees, or Sine of 177 degrees.								Co-sine of 87 degrees, or Sine of 177 degrees.			

LOGARITHMIC SINES.

Sine of 2 degrees, or Co-sine of 92 degrees.			Seconds	Minutes	Proportional parts.	Sine of 2 degrees, or Co-sine of 92 degrees.			Seconds	Minutes	Proportional parts.
0"	5"	10"				0"	5"	10"			
9680	8.639921	8.640162	45	1" = 48	45	8.681043	8.681262	8.681481	45	1" = 44	
9402	8.640643	8.640884	30	2. 96	15	8.681700	8.681919	8.682138	30	2. 87	
1124	8.641364	8.641604	15	3. 145	30	8.682356	8.682575	8.682793	15	3. 131	
1844	8.642084	8.642324	0 29	4. 193	45	8.683011	8.683230	8.683448	0 14	4. 175	
2563	8.642803	8.643042	45	1 = 48	46	8.683665	8.683883	8.684101	45	1 = 43	
3281	8.643520	8.643759	30	2. 95	15	8.684319	8.684536	8.684753	30	2. 87	
3998	8.644237	8.644475	15	3. 143	30	8.684971	8.685188	8.685405	15	3. 130	
4714	8.644952	8.645190	0 28	4. 191	45	8.685622	8.685839	8.686055	0 13	4. 174	
5428	8.645666	8.645904	45	1 = 47	47	8.686272	8.686488	8.686705	45	1 = 43	
5141	8.646379	8.646616	30	2. 95	15	8.686921	8.687137	8.687353	30	2. 86	
5854	8.647091	8.647328	15	3. 142	30	8.687569	8.687785	8.688001	15	3. 129	
7564	8.647801	8.648038	0 27	4. 190	45	8.688216	8.688432	8.688647	0 12	4. 173	
8274	8.648511	8.648747	45	1 = 47	48	8.688863	8.689078	8.689293	45	1 = 43	
8983	8.649219	8.649455	30	2. 94	15	8.689508	8.689723	8.689937	30	2. 86	
9690	8.649926	8.650161	15	3. 141	30	8.690152	8.690367	8.690581	15	3. 129	
2396	8.650632	8.650867	0 26	4. 188	45	8.690796	8.691010	8.691224	0 11	4. 172	
1102	8.651336	8.651571	45	1 = 47	49	8.691438	8.691652	8.691866	45	1 = 43	
1806	8.652040	8.652274	30	2. 94	15	8.692079	8.692293	8.692506	30	2. 85	
2508	8.652742	8.652976	15	3. 140	30	8.692720	8.692933	8.693146	15	3. 128	
3210	8.653444	8.653677	0 25	4. 187	45	8.693259	8.693472	8.693685	0 10	4. 171	
3911	8.654144	8.654377	45	1 = 46	50	8.693998	8.694211	8.694423	45	1 = 42	
4610	8.654843	8.655076	30	2. 93	15	8.694636	8.694848	8.695060	30	2. 85	
5308	8.655541	8.655773	15	3. 139	30	8.695272	8.695484	8.695696	15	3. 127	
6006	8.656238	8.656470	0 24	4. 186	45	8.695908	8.696120	8.696332	0 9	4. 170	
6702	8.656933	8.657165	45	1 = 46	51	8.696543	8.696755	8.696966	45	1 = 42	
7397	8.657628	8.657859	30	2. 92	15	8.697177	8.697388	8.697599	30	2. 84	
8090	8.658321	8.658552	15	3. 139	30	8.697810	8.698021	8.698232	15	3. 126	
8783	8.659014	8.659244	0 23	4. 185	45	8.698442	8.698653	8.698863	0 8	4. 169	
9475	8.659705	8.659935	45	1 = 46	52	8.699073	8.699284	8.699494	45	1 = 42	
10165	8.660395	8.660625	30	2. 92	15	8.699704	8.699914	8.700123	30	2. 84	
10855	8.661084	8.661314	15	3. 138	30	8.700333	8.700543	8.700752	15	3. 126	
11543	8.661772	8.662001	0 22	4. 184	45	8.700961	8.701171	8.701380	0 7	4. 168	
12230	8.662459	8.662688	45	1 = 46	53	8.701589	8.701798	8.702007	45	1 = 42	
12916	8.663145	8.663373	30	2. 91	15	8.702216	8.702424	8.702633	30	2. 83	
13602	8.663830	8.664058	15	3. 137	30	8.702841	8.703050	8.703258	15	3. 125	
14286	8.664513	8.664741	0 21	4. 182	45	8.703466	8.703674	8.703882	0 6	4. 167	
14968	8.665196	8.665423	45	1 = 45	54	8.704090	8.704298	8.704505	45	1 = 41	
15650	8.665877	8.666104	30	2. 91	15	8.704713	8.704920	8.705128	30	2. 83	
16331	8.666558	8.666784	15	3. 136	30	8.705335	8.705542	8.705749	15	3. 124	
17011	8.667237	8.667463	0 20	4. 181	45	8.705956	8.706163	8.706370	0 5	4. 166	
17689	8.667915	8.668141	45	1 = 45	55	8.706577	8.706783	8.706990	45	1 = 41	
18367	8.668593	8.668818	30	2. 90	15	8.707196	8.707402	8.707609	30	2. 82	
19043	8.669269	8.669494	15	3. 135	30	8.707815	8.708021	8.708227	15	3. 123	
19719	8.669944	8.670169	0 19	4. 180	45	8.708432	8.708638	8.708844	0 4	4. 165	
20393	8.670618	8.670842	45	1 = 45	56	8.709049	8.709255	8.709460	45	1 = 41	
21067	8.671291	8.671515	30	2. 90	15	8.709665	8.709870	8.710075	30	2. 82	
21739	8.671963	8.672187	15	3. 134	30	8.710280	8.710485	8.710690	15	3. 123	
22410	8.672634	8.672857	0 18	4. 179	45	8.710894	8.711099	8.711303	0 3	4. 164	
23080	8.673304	8.673527	45	1 = 44	57	8.711508	8.711712	8.711916	45	1 = 41	
23750	8.673972	8.674195	30	2. 89	15	8.712120	8.712324	8.712528	30	2. 81	
24418	8.674640	8.674863	15	3. 133	30	8.712732	8.712935	8.713139	15	3. 122	
25085	8.675307	8.675529	0 17	4. 178	45	8.713342	8.713546	8.713749	0 2	4. 163	
25751	8.675973	8.676195	45	1 = 44	58	8.713952	8.714155	8.714358	45	1 = 40	
26416	8.676638	8.676859	30	2. 88	15	8.714561	8.714764	8.714967	30	2. 81	
27080	8.677301	8.677522	15	3. 133	30	8.715169	8.715372	8.715574	15	3. 121	
27743	8.677964	8.678184	0 16	4. 177	45	8.715777	8.715979	8.716181	0 1	4. 162	
28405	8.678626	8.678846	45	1 = 44	59	8.716383	8.716585	8.716787	45	1 = 40	
29066	8.679286	8.679506	30	2. 88	15	8.716989	8.717190	8.717392	30	2. 81	
29726	8.679946	8.680166	15	3. 132	30	8.717593	8.717795	8.717996	15	3. 121	
30385	8.680605	8.680824	0 15	4. 176	45	8.718197	8.718398	8.718599	0 0	4. 161	
1"	10"	5"	Proportional parts.	Sine of 87 degrees, or Sine of 177 degrees.			Proportional parts.				
Seconds	Minutes	Seconds		15"	10"	5"					

LOGARITHMIC SINES.

Minutes		Seconds		Sine of 3 degrees, or Co-sine of 93 degrees.			Seconds		Minutes		Proport. parts.	Minutes		Seconds		Sine of 3 degrees, or Co-sine of 93 degrees.			Seconds		
				0"	5"	10"												0"	5"	10"	
0	0	8.718800	8.719001	8.719202	45	1" = 40	15	0	8.753528	8.753713	8.753898	45	15	0	8.754084	8.754269	8.754454	30	8.754639	8.754824	8.755009
15	8.719402	8.719603	8.719803	30	2. 80	30	2. 120	30	8.755193	8.755378	8.755562	15	15	8.755747	8.755931	8.756116	30	8.756300	8.756484	8.756668	
30	8.720004	8.720204	8.720404	15	3. 160	15	3. 119	15	8.756852	8.757036	8.757220	30	30	8.757404	8.757587	8.757771	15	8.757955	8.758138	8.758322	
45	8.720604	8.720804	8.721004	0	4. 159	0	4. 159	0	8.758505	8.758688	8.758871	45	45	8.759054	8.759237	8.759420	15	8.759603	8.759786	8.759969	
1	0	8.721204	8.721404	8.721603	45	1 = 40	16	0	8.760151	8.760334	8.760516	45	16	0	8.760699	8.760881	8.761063	30	8.761245	8.761427	8.761609
15	8.721803	8.722002	8.722202	30	2. 80	30	2. 79	30	8.761791	8.761973	8.762155	15	15	8.762337	8.762518	8.762700	15	8.762883	8.763063	8.763244	
30	8.722401	8.722600	8.722799	15	3. 119	15	3. 118	15	8.763425	8.763606	8.763788	30	30	8.763969	8.764149	8.764330	30	8.764511	8.764692	8.764872	
45	8.722998	8.723197	8.723396	0	4. 159	0	4. 158	0	8.765053	8.765234	8.765414	45	45	8.765594	8.765775	8.765955	15	8.766135	8.766315	8.766495	
2	0	8.723595	8.723793	8.723992	45	1 = 40	17	0	8.766675	8.766855	8.767034	45	17	0	8.767214	8.767394	8.767573	30	8.767753	8.767933	8.768111
15	8.724190	8.724389	8.724587	30	2. 79	30	2. 78	30	8.768290	8.768470	8.768649	15	15	8.768828	8.769007	8.769185	15	8.769364	8.769543	8.769721	
30	8.724785	8.724983	8.725181	15	3. 119	15	3. 117	15	8.770970	8.771148	8.771326	30	30	8.771504	8.771681	8.771859	30	8.772037	8.772215	8.772392	
45	8.725379	8.725577	8.725775	0	4. 158	0	4. 156	0	8.772569	8.772747	8.772924	45	45	8.773101	8.773279	8.773456	15	8.773633	8.773810	8.773987	
3	0	8.725972	8.726170	8.726367	45	1 = 39	18	0	8.774163	8.774340	8.774517	45	18	0	8.774693	8.774870	8.775046	15	8.775223	8.775399	8.775575
15	8.726564	8.726762	8.726959	30	2. 79	30	2. 78	30	8.775751	8.775927	8.776103	15	15	8.776279	8.776455	8.776631	15	8.776807	8.776982	8.777158	
30	8.727156	8.727353	8.727550	15	3. 118	15	3. 116	15	8.777333	8.777509	8.777684	30	30	8.777860	8.778035	8.778210	30	8.778385	8.778560	8.778735	
45	8.727747	8.727943	8.728140	0	4. 158	0	4. 155	0	8.778910	8.779085	8.779259	45	45	8.779434	8.779609	8.779783	15	8.779958	8.780132	8.780306	
4	0	8.728337	8.728533	8.728729	45	1 = 39	19	0	8.780481	8.780655	8.780829	45	19	0	8.781003	8.781177	8.781351	15	8.781524	8.781698	8.781872
15	8.728926	8.729122	8.729318	30	2. 78	30	2. 76	30	8.782046	8.782219	8.782393	15	15	8.782566	8.782739	8.782913	15	8.783086	8.783259	8.783432	
30	8.729514	8.729710	8.729906	15	3. 118	15	3. 114	15	8.783605	8.783778	8.783951	30	30	8.784123	8.784296	8.784469	30	8.784641	8.784814	8.784986	
45	8.730102	8.730297	8.730493	0	4. 157	0	4. 152	0	8.785159	8.785331	8.785503	45	45	8.785675	8.785848	8.786020	15	8.786192	8.786364	8.786536	
5	0	8.730688	8.730884	8.731079	45	1 = 39	20	0	8.786601	8.786773	8.786944	45	20	0	8.787016	8.787187	8.787357	15	8.787422	8.787592	8.787761
15	8.731274	8.731469	8.731664	30	2. 78	30	2. 76	30	8.788117	8.788287	8.788456	15	15	8.788525	8.788694	8.788862	15	8.788931	8.789099	8.789266	
30	8.731859	8.732054	8.732249	15	3. 117	15	3. 114	15	8.789343	8.789510	8.789676	30	30	8.789742	8.789908	8.790073	15	8.790138	8.790303	8.790467	
45	8.732444	8.732638	8.732833	0	4. 156	0	4. 153	0	8.790598	8.790762	8.790925	45	45	8.791088	8.791251	8.791413	15	8.791575	8.791737	8.791898	
6	0	8.733027	8.733222	8.733416	45	1 = 39	21	0	8.792037	8.792200	8.792361	45	21	0	8.792522	8.792683	8.792843	15	8.792993	8.793153	8.793312
15	8.733610	8.733804	8.733998	30	2. 78	30	2. 76	30	8.793461	8.793620	8.793778	15	15	8.793936	8.794094	8.794251	15	8.794408	8.794565	8.794721	
30	8.734192	8.734386	8.734580	15	3. 116	15	3. 114	15	8.794878	8.795034	8.795189	30	30	8.795344	8.795498	8.795651	15	8.795805	8.795958	8.796110	
45	8.734773	8.734967	8.735160	0	4. 155	0	4. 153	0	8.796269	8.796421	8.796572	45	45	8.796723	8.796874	8.797024	15	8.797174	8.797324	8.797474	
7	0	8.735354	8.735547	8.735740	45	1 = 39	22	0	8.797575	8.797725	8.797874	45	22	0	8.798023	8.798171	8.798318	15	8.798465	8.798612	8.798758
15	8.735933	8.736126	8.736319	30	2. 77	30	2. 76	30	8.798964	8.799110	8.799255	15	15	8.799400	8.799545	8.799689	15	8.799832	8.799975	8.800117	
30	8.736512	8.736705	8.736898	15	3. 116	15	3. 114	15	8.800558	8.800700	8.800841	30	30	8.800982	8.801123	8.801263	15	8.801403	8.801543	8.801682	
45	8.737090	8.737283	8.737475	0	4. 154	0	4. 152	0	8.801822	8.801961	8.802099	45	45	8.802237	8.802375	8.802512	15	8.802649	8.802786	8.802922	
8	0	8.737668	8.737860	8.738052	45	1 = 38	23	0	8.803058	8.803194	8.803329	45	23	0	8.803464	8.803599	8.803733	15	8.803867	8.803999	8.804131
15	8.738244	8.738436	8.738628	30	2. 77	30	2. 76	30	8.804268	8.804401	8.804533	15	15	8.804664	8.804796	8.804927	15	8.805058	8.805188	8.805317	
30	8.738820	8.739012	8.739203	15	3. 115	15	3. 114	15	8.805500	8.805630	8.805759	30	30	8.805888	8.806016	8.806144	15	8.806271	8.806398	8.806524	
45	8.739395	8.739586	8.739778	0	4. 153	0	4. 151	0	8.806656	8.806783	8.806909	45	45	8.807035	8.807161	8.807286	15	8.807411	8.807535	8.807658	
9	0	8.739969	8.740160	8.740352	45	1 = 38	24	0	8.807781	8.807905	8.808028	45	24	0	8.808151	8.808274	8.808396	15	8.808517	8.808638	8.808758
15	8.740543	8.740734	8.740925	30	2. 76	30	2. 75	30	8.808964	8.809086	8.809207	15	15	8.809328	8.809448	8.809567	15	8.809686	8.809804	8.809921	
30	8.741115	8.741306	8.741497	15	3. 114	15	3. 114	15	8.809999	8.810117	8.810234	30	30	8.810351	8.810468	8.810583	15	8.810699	8.810814	8.810928	
45	8.741687	8.741878	8.742068	0	4. 153	0	4. 151	0	8.811042	8.811157	8.811271	45	45	8.811385	8.811498	8.811610	15	8.811723	8.811835	8.811946	
10	0	8.742259	8.742449	8.742639	45	1 = 38	25	0	8.811959	8.812071	8.812182	45	25	0	8.812293	8.812404	8.812514	15	8.812624	8.812733	8.812842
15	8.742829	8.743019	8.743209	30	2. 76	30	2. 75	30	8.812951	8.813061	8.813170	15	15	8.813279	8.813387	8.813495	15	8.813603	8.813710	8.813817	
30	8.743399	8.743589	8.743778	15	3. 114	15	3. 113	15	8.813924	8.814031	8.814137	30	30	8.814243	8.814349	8.814454	15	8.814559	8.814663	8.814767	
45	8.743968	8.744157	8.744347	0	4. 152	0	4. 150	0	8.814870	8.814974	8.815077	45	45	8.815180	8.815282	8.815384	15	8.815486	8.815587	8.815688	
11	0	8.744536	8.744725	8.744914	45	1 = 38	26	0	8.815789	8.815891	8.815992	45	26	0	8.816093	8.816194	8.816294	15	8.816394	8.816494	8.816594
15	8.745104	8.745293	8.745481	30	2. 75	30	2. 74	30	8.816695	8.816795	8.816894	15	15	8.816993	8.817092	8.817190	15	8.817288	8.817386	8.817483	
30	8.745670	8.745859	8.746048	15	3. 113	15	3. 112	15	8.817589	8.817687	8.817784	30	30	8.817881	8.817978	8.818074	15	8.818170	8.818266	8.818361	
45	8.746236	8.746425	8.746613	0	4. 151	0	4. 149	0	8.818466	8.818561	8.818656	45	45	8.818750	8.818844	8.818937	15	8.819030	8.819123	8.819215	
12	0	8.746802	8.746990	8.747178	45	1 = 38	27	0	8.819309	8.819401	8.819492	45	27	0	8.819583	8.819674	8.819764	15	8.819853	8.819943	8.819932
15	8.747366	8.747554	8.747742	30	2. 75	30	2. 74	30	8.819999	8.820089	8.820178	15	15	8.820267	8.820355	8.820443	15	8.820531	8.820618	8.820704	
30	8.747930	8.748118	8.748305	15	3. 113	15	3. 112	15	8.820800	8.820887	8.820973	30	30	8.821058	8.821143	8.821227	15	8.821311	8.821395	8.821478	
45	8.748493	8.748681	8.748868	0	4. 150	0	4. 149	0	8.821560	8.821643	8.821725	45	45	8.821807	8.821889	8.821970	15	8.822051	8.822131	8.822211	
13	0	8.749055	8.749243	8.749430	45	1 = 37	28	0	8.822293	8.822374	8.822454	45	28	0	8.822533	8.822613	8.822692	15	8.822771	8.822849	8.822927

LOGARITHMIC SINES.

Sine of 3 degrees, or Co-sine of 93 degrees.			Sine of 3 degrees, or Co-sine of 93 degrees.						
5"	10"	Seconds	0"	5"	10"				
675	8.785847	8.786019	45	0	8.815599	8.815759	8.815920	45	1" = 32
1191	8.786363	8.786535	30	15	8.816080	8.816241	8.816401	30	2. 64
1707	8.786879	8.787050	15	30	8.816561	8.816721	8.816882	15	3. 96
2222	8.787393	8.787565	0	45	8.817042	8.817202	8.817362	0	4. 128
2736	8.787907	8.788078	45	0	8.817522	8.817682	8.817841	45	1 = 32
3250	8.788421	8.788592	30	15	8.818001	8.818161	8.818321	30	2. 64
3763	8.788933	8.789104	15	30	8.818480	8.818640	8.818799	15	3. 96
4275	8.789446	8.789616	0	45	8.818959	8.819118	8.819277	0	4. 128
4787	8.789957	8.790128	45	0	8.819436	8.819596	8.819755	45	1 = 32
5298	8.790468	8.790638	30	15	8.819914	8.820073	8.820232	30	2. 64
5808	8.790979	8.791149	15	30	8.820391	8.820549	8.820708	15	3. 95
6318	8.791488	8.791658	0	45	8.820867	8.821025	8.821184	0	4. 127
6828	8.791998	8.792167	45	0	8.821343	8.821501	8.821659	45	1 = 32
7337	8.792506	8.792676	30	15	8.821818	8.821976	8.822134	30	2. 63
7845	8.793014	8.793183	15	30	8.822293	8.822451	8.822609	15	3. 95
8352	8.793521	8.793690	0	45	8.822767	8.822925	8.823083	0	4. 126
8859	8.794028	8.794197	45	0	8.823240	8.823398	8.823556	45	1 = 31
9366	8.794534	8.794703	30	15	8.823714	8.823871	8.824029	30	2. 63
9872	8.795040	8.795209	15	30	8.824186	8.824344	8.824501	15	3. 94
10377	8.795545	8.795713	0	45	8.824658	8.824816	8.824973	0	4. 126
10881	8.796050	8.796218	45	0	8.825130	8.825287	8.825444	45	1 = 31
11386	8.796553	8.796721	30	15	8.825601	8.825758	8.825915	30	2. 63
11889	8.797057	8.797224	15	30	8.826072	8.826228	8.826385	15	3. 94
12392	8.797559	8.797727	0	45	8.826542	8.826698	8.826855	0	4. 125
12894	8.798061	8.798229	45	0	8.827011	8.827168	8.827324	45	1 = 31
13396	8.798563	8.798730	30	15	8.827480	8.827637	8.827793	30	2. 62
13897	8.799064	8.799231	15	30	8.827949	8.828105	8.828261	15	3. 94
14397	8.799564	8.799731	0	45	8.828417	8.828573	8.828729	0	4. 125
14897	8.800064	8.800230	45	0	8.828884	8.829040	8.829196	45	1 = 31
15397	8.800563	8.800729	30	15	8.829351	8.829507	8.829663	30	2. 62
15896	8.801062	8.801228	15	30	8.829818	8.829973	8.830129	15	3. 93
16394	8.801560	8.801726	0	45	8.830284	8.830439	8.830594	0	4. 124
16892	8.802057	8.802223	45	0	8.830750	8.830905	8.831060	45	1 = 31
17389	8.802554	8.802720	30	15	8.831215	8.831369	8.831524	30	2. 62
17885	8.803051	8.803216	15	30	8.831679	8.831834	8.831988	15	3. 93
18381	8.803546	8.803711	0	45	8.832143	8.832298	8.832452	0	4. 124
18876	8.804041	8.804206	45	0	8.832607	8.832761	8.832915	45	1 = 31
19371	8.804536	8.804701	30	15	8.833070	8.833224	8.833378	30	2. 62
19866	8.805030	8.805195	15	30	8.833532	8.833686	8.833840	15	3. 92
20360	8.805524	8.805688	0	45	8.833994	8.834148	8.834302	0	4. 123
20852	8.806017	8.806181	45	0	8.834456	8.834609	8.834763	45	1 = 31
21345	8.806509	8.806673	30	15	8.834917	8.835070	8.835224	30	2. 61
21837	8.807001	8.807165	15	30	8.835377	8.835531	8.835684	15	3. 92
22328	8.807492	8.807656	0	45	8.835837	8.835991	8.836144	0	4. 123
22819	8.807983	8.808146	45	0	8.836297	8.836450	8.836603	45	1 = 31
23308	8.808473	8.808636	30	15	8.836756	8.836909	8.837062	30	2. 61
23797	8.808962	8.809126	15	30	8.837215	8.837367	8.837520	15	3. 92
24285	8.809452	8.809614	0	45	8.837673	8.837825	8.837978	0	4. 122
24772	8.809940	8.810103	45	0	8.838130	8.838283	8.838435	45	1 = 30
25258	8.810428	8.810590	30	15	8.838588	8.838740	8.838892	30	2. 61
25743	8.810915	8.811078	15	30	8.839044	8.839196	8.839348	15	3. 91
26228	8.811402	8.811564	0	45	8.839500	8.839652	8.839804	0	4. 122
26712	8.811888	8.812050	45	0	8.839956	8.840108	8.840260	45	1 = 30
27195	8.812374	8.812536	30	15	8.840411	8.840563	8.840715	30	2. 61
27678	8.812859	8.813021	15	30	8.840866	8.841018	8.841169	15	3. 91
28160	8.813344	8.813505	0	45	8.841320	8.841472	8.841623	0	4. 121
28641	8.813828	8.813989	45	0	8.841774	8.841925	8.842076	45	1 = 30
29122	8.814312	8.814473	30	15	8.842227	8.842378	8.842529	30	2. 60
29602	8.814795	8.814956	15	30	8.842680	8.842831	8.842982	15	3. 90
30081	8.815277	8.815438	0	45	8.843133	8.843283	8.843434	0	4. 121
30560	8.815759	8.815920	45	0	8.843586	8.843736	8.843887	45	1 = 30
31038	8.816241	8.816401	30	15	8.844039	8.844189	8.844340	30	2. 60
31516	8.816721	8.816882	15	30	8.844492	8.844642	8.844793	15	3. 90
31993	8.817202	8.817362	0	45	8.844945	8.845095	8.845246	0	4. 121
32470	8.817682	8.817841	45	0	8.845398	8.845548	8.845699	45	1 = 30
32946	8.818161	8.818321	30	15	8.845851	8.845999	8.846149	30	2. 60
33422	8.818640	8.818799	15	30	8.846304	8.846452	8.846602	15	3. 90
33897	8.819118	8.819277	0	45	8.846757	8.846905	8.847055	0	4. 121
34372	8.819596	8.819755	45	0	8.847209	8.847357	8.847507	45	1 = 30
34846	8.820073	8.820232	30	15	8.847661	8.847809	8.847959	30	2. 60
35319	8.820549	8.820708	15	30	8.848113	8.848261	8.848411	15	3. 90
35792	8.821025	8.821184	0	45	8.848565	8.848713	8.848863	0	4. 121
36264	8.821501	8.821659	45	0	8.849017	8.849165	8.849315	45	1 = 30
36736	8.821976	8.822134	30	15	8.849469	8.849617	8.849767	30	2. 60
37207	8.822451	8.822609	15	30	8.849921	8.850069	8.850219	15	3. 90
37678	8.822925	8.823083	0	45	8.850373	8.850521	8.850671	0	4. 121
38148	8.823398	8.823556	45	0	8.850825	8.850973	8.851123	45	1 = 30
38618	8.823871	8.824029	30	15	8.851277	8.851425	8.851575	30	2. 60
39087	8.824344	8.824501	15	30	8.851729	8.851877	8.852027	15	3. 90
39556	8.824816	8.824973	0	45	8.852181	8.852329	8.852479	0	4. 121
40024	8.825287	8.825444	45	0	8.852633	8.852781	8.852931	45	1 = 30
40492	8.825758	8.825915	30	15	8.853085	8.853233	8.853383	30	2. 60
40959	8.826228	8.826385	15	30	8.853537	8.853685	8.853835	15	3. 90
41426	8.826698	8.826855	0	45	8.853989	8.854137	8.854287	0	4. 121
41892	8.827168	8.827324	45	0	8.854441	8.854589	8.854739	45	1 = 30
42358	8.827637	8.827793	30	15	8.854893	8.855041	8.855191	30	2. 60
42823	8.828105	8.828261	15	30	8.855345	8.855493	8.855643	15	3. 90
43288	8.828573	8.828729	0	45	8.855797	8.855945	8.856095	0	4. 121
43752	8.829040	8.829196	45	0	8.856249	8.856397	8.856547	45	1 = 30
44216	8.829507	8.829663	30	15	8.856701	8.856849	8.856999	30	2. 60
44679	8.829973	8.830129	15	30	8.857153	8.857301	8.857451	15	3. 90
45142	8.830439	8.830594	0	45	8.857605	8.857753	8.857903	0	4. 121
45604	8.830905	8.831060	45	0	8.858057	8.858205	8.858355	45	1 = 30
46066	8.831369	8.831524	30	15	8.858509	8.858657	8.858807	30	2. 60
46527	8.831834	8.831988	15	30	8.858961	8.859109	8.859259	15	3. 90
46988	8.832298	8.832452	0	45	8.859413	8.859561	8.859711	0	4. 121
47448	8.832761	8.832915	45	0	8.859865	8.860013	8.860163	45	1 = 30
47907	8.833224	8.833378	30	15	8.860317	8.860465	8.860615	30	2. 60
48366	8.833686	8.833840	15	30	8.860769	8.860917	8.861067	15	3. 90
48824	8.834148	8.834302	0	45	8.861221	8.861369	8.861519	0	4. 121
49282	8.834609	8.834763	45	0	8.861673	8.861821	8.861971	45	1 = 30
49739	8.835070	8.835224	30	15	8.862125	8.862273	8.862423	30	2. 60
50195	8.835531	8.835684	15	30	8.862577	8.862725	8.862875	15	3. 90
50651	8.835991	8.836144	0	45	8.863029	8.863177	8.863327	0	4. 121
51106	8.836450	8.836603	45	0	8.863481	8.863629	8.863779	45	1 = 30
51561	8.836909	8.837062	30	15	8.863933	8.864081	8.864231	30	2. 60
52015	8.837367	8.837520	15	30	8.864385	8.864533	8.864683	15	3. 90
52469	8.837825	8.837978	0	45	8.864837	8.864985	8.865135	0	4. 121
52922	8.838283	8.838435	45	0	8.865289	8.865437			

LOGARITHMIC SINES.

Minutes		Seconds		Sine of 4 degrees, or Co-sine of 94 degrees.			Seconds		Minutes		Proport. parts.	Minutes		Seconds		Sine of 4 degrees, or Co-sine of 94 degrees.			Seconds	
				0'	5'	10'										0'	5'	10'		
0	0	8.843585	8.843735	8.843886	45	1"=30	15	0	8.869868	8.870018	8.870151	45								
	15	8.844036	8.844186	8.844337	30	2. 60		15	8.870293	8.870434	8.870576	30								
	30	8.844487	8.844637	8.844787	15	3. 90		30	8.870717	8.870859	8.871000	15								
	45	8.844937	8.845087	8.845237	0	59 4. 120		45	8.871141	8.871282	8.871424	0								
1	0	8.845387	8.845537	8.845687	45	1=30	16	0	8.871565	8.871706	8.871847	45								
	15	8.845837	8.845987	8.846136	30	2. 60		15	8.871988	8.872129	8.872270	30								
	30	8.846286	8.846436	8.846585	15	3. 90		30	8.872411	8.872551	8.872692	15								
	45	8.846735	8.846884	8.847033	0	58 4. 120		45	8.872833	8.872973	8.873114	0								
2	0	8.847183	8.847332	8.847481	45	1=30	17	0	8.873255	8.873395	8.873536	45								
	15	8.847630	8.847780	8.847929	30	2. 60		15	8.873676	8.873817	8.873957	30								
	30	8.848078	8.848227	8.848376	15	3. 89		30	8.874097	8.874237	8.874378	15								
	45	8.848524	8.848673	8.848822	0	57 4. 119		45	8.874518	8.874658	8.874798	0								
3	0	8.848971	8.849119	8.849268	45	1=30	18	0	8.874938	8.875078	8.875218	45								
	15	8.849417	8.849565	8.849714	30	2. 59		15	8.875358	8.875498	8.875638	30								
	30	8.849862	8.850010	8.850159	15	3. 89		30	8.875777	8.875917	8.876057	15								
	45	8.850307	8.850455	8.850603	0	56 4. 119		45	8.876196	8.876336	8.876476	0								
4	0	8.850751	8.850899	8.851047	45	1=30	19	0	8.876615	8.876754	8.876894	45								
	15	8.851195	8.851343	8.851491	30	2. 59		15	8.877033	8.877173	8.877312	30								
	30	8.851639	8.851787	8.851934	15	3. 89		30	8.877451	8.877590	8.877729	15								
	45	8.852082	8.852230	8.852377	0	55 4. 118		45	8.877868	8.878007	8.878146	0								
5	0	8.852525	8.852672	8.852819	45	1=29	20	0	8.878285	8.878424	8.878563	45								
	15	8.852967	8.853114	8.853261	30	2. 59		15	8.878702	8.878841	8.878980	30								
	30	8.853408	8.853556	8.853703	15	3. 88		30	8.879118	8.879257	8.879395	15								
	45	8.853850	8.853997	8.854144	0	54 4. 118		45	8.879534	8.879672	8.879811	0								
6	0	8.854291	8.854437	8.854584	45	1=29	21	0	8.879949	8.880088	8.880226	45								
	15	8.854731	8.854878	8.855024	30	2. 59		15	8.880364	8.880503	8.880641	30								
	30	8.855171	8.855317	8.855464	15	3. 88		30	8.880779	8.880917	8.881055	15								
	45	8.855610	8.855757	8.855903	0	53 4. 117		45	8.881193	8.881331	8.881469	0								
7	0	8.856049	8.856196	8.856342	45	1=29	22	0	8.881607	8.881745	8.881883	45								
	15	8.856488	8.856634	8.856780	30	2. 59		15	8.882020	8.882158	8.882296	30								
	30	8.856926	8.857072	8.857218	15	3. 88		30	8.882433	8.882571	8.882708	15								
	45	8.857364	8.857510	8.857655	0	52 4. 116		45	8.882846	8.882983	8.883121	0								
8	0	8.857801	8.857947	8.858092	45	1=29	23	0	8.883258	8.883396	8.883533	45								
	15	8.858238	8.858383	8.858529	30	2. 58		15	8.883670	8.883807	8.883944	30								
	30	8.858674	8.858820	8.858965	15	3. 87		30	8.884081	8.884219	8.884356	15								
	45	8.859110	8.859255	8.859401	0	51 4. 116		45	8.884492	8.884629	8.884766	0								
9	0	8.859546	8.859691	8.859836	45	1=29	24	0	8.884903	8.885040	8.885177	45								
	15	8.859981	8.860126	8.860271	30	2. 58		15	8.885313	8.885450	8.885587	30								
	30	8.860415	8.860560	8.860705	15	3. 87		30	8.885723	8.885860	8.885996	15								
	45	8.860850	8.860994	8.861139	0	50 4. 116		45	8.886133	8.886269	8.886406	0								
10	0	8.861283	8.861428	8.861572	45	1=29	25	0	8.886542	8.886678	8.886814	45								
	15	8.861717	8.861861	8.862005	30	2. 58		15	8.886951	8.887087	8.887223	30								
	30	8.862150	8.862294	8.862438	15	3. 86		30	8.887359	8.887495	8.887631	15								
	45	8.862582	8.862726	8.862870	0	49 4. 115		45	8.887767	8.887903	8.888039	0								
11	0	8.863014	8.863158	8.863302	45	1=29	26	0	8.888174	8.888310	8.888446	45								
	15	8.863446	8.863589	8.863733	30	2. 57		15	8.888582	8.888717	8.888853	30								
	30	8.863877	8.864020	8.864164	15	3. 86		30	8.888988	8.889124	8.889259	15								
	45	8.864307	8.864451	8.864594	0	48 4. 115		45	8.889395	8.889530	8.889665	0								
12	0	8.864738	8.864881	8.865024	45	1=29	27	0	8.889801	8.889936	8.890071	45								
	15	8.865168	8.865311	8.865454	30	2. 57		15	8.890206	8.890341	8.890477	30								
	30	8.865597	8.865740	8.865883	15	3. 86		30	8.890612	8.890747	8.890882	15								
	45	8.866026	8.866169	8.866312	0	47 4. 114		45	8.891016	8.891151	8.891286	0								
13	0	8.866455	8.866597	8.866740	45	1=28	28	0	8.891421	8.891556	8.891690	45								
	15	8.866883	8.867025	8.867168	30	2. 57		15	8.891825	8.891960	8.892094	30								
	30	8.867310	8.867453	8.867595	15	3. 85		30	8.892229	8.892363	8.892498	15								
	45	8.867738	8.867880	8.868022	0	46 4. 114		45	8.892632	8.892767	8.892901	0								
14	0	8.868165	8.868307	8.868449	45	1=28	29	0	8.893035	8.893169	8.893304	45								
	15	8.868591	8.868733	8.868875	30	2. 57		15	8.893438	8.893572	8.893706	30								
	30	8.869017	8.869159	8.869301	15	3. 85		30	8.893840	8.893974	8.894108	15								
	45	8.869443	8.869585	8.869726	0	45 4. 114		45	8.894242	8.894376	8.894510	0								
Minutes	Seconds	15'	10'	5'	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15'	10'	5'	Seconds							
		Co-sine of 85 degrees, or Sine of 175 degrees.					Proport. parts.			Co-sine of 85 degrees, or Sine of 175 degrees.			Seconds							
Minutes	Seconds				Seconds	Minutes		Minutes	Seconds				Minutes							

LOGARITHMIC SINES.

4 degrees, or of 94 degrees.		Seconds	Minutes	Proport. parts.	Minutes	Seconds	Sine of 4 degrees, or Co-sine of 94 degrees.			Seconds	Minutes	Proport. parts.
5'	10'						0'	5'	10'			
894777	8.894911	45	1" = 27		45	0	8.918073	8.918200	8.918327	45	1" = 25	
895178	8.895312	30	2. 53		15	15	8.918453	8.918580	8.918706	30	2. 51	
895579	8.895712	15	3. 80		30	30	8.918833	8.918959	8.919086	15	3. 76	
895979	8.896112	0 29	4. 107		45	45	8.919212	8.919339	8.919465	0 14	4. 101	
896379	8.896512	45	1" = 27		46	0	8.919591	8.919717	8.919844	45	1" = 25	
896778	8.896911	30	2. 53		15	15	8.919970	8.920096	8.920222	30	2. 50	
897177	8.897310	15	3. 80		30	30	8.920348	8.920474	8.920600	15	3. 76	
897576	8.897709	0 28	4. 106		45	45	8.920726	8.920852	8.920978	0 13	4. 101	
897975	8.898107	45	1" = 27		47	0	8.921103	8.921229	8.921355	45	1" = 25	
898373	8.898505	30	2. 53		15	15	8.921481	8.921606	8.921732	30	2. 50	
898770	8.898903	15	3. 80		30	30	8.921858	8.921983	8.922109	15	3. 75	
899168	8.899300	0 27	4. 106		45	45	8.922234	8.922360	8.922485	0 12	4. 100	
899565	8.899697	45	1" = 26		48	0	8.922611	8.922736	8.922861	45	1" = 25	
899961	8.900093	30	2. 53		15	15	8.922986	8.923112	8.923237	30	2. 50	
900357	8.900489	15	3. 79		30	30	8.923362	8.923487	8.923612	15	3. 75	
900753	8.900885	0 26	4. 106		45	45	8.923737	8.923862	8.923987	0 11	4. 100	
901149	8.901280	45	1" = 26		49	0	8.924112	8.924237	8.924362	45	1" = 25	
901544	8.901675	30	2. 53		15	15	8.924487	8.924612	8.924737	30	2. 50	
901938	8.902070	15	3. 79		30	30	8.924861	8.924986	8.925111	15	3. 75	
902333	8.902464	0 25	4. 105		45	45	8.925235	8.925360	8.925484	0 10	4. 100	
902727	8.902858	45	1" = 26		50	0	8.925609	8.925733	8.925858	45	1" = 25	
903121	8.903252	30	2. 52		15	15	8.925982	8.926107	8.926231	30	2. 50	
903514	8.903645	15	3. 79		30	30	8.926355	8.926480	8.926604	15	3. 75	
903907	8.904038	0 24	4. 105		45	45	8.926728	8.926852	8.926976	0 9	4. 99	
904299	8.904430	45	1" = 26		51	0	8.927100	8.927224	8.927348	45	1" = 25	
904692	8.904822	30	2. 52		15	15	8.927472	8.927596	8.927720	30	2. 50	
905084	8.905214	15	3. 78		30	30	8.927844	8.927968	8.928092	15	3. 74	
905478	8.905606	0 23	4. 104		45	45	8.928216	8.928339	8.928463	0 8	4. 99	
905866	8.905997	45	1" = 26		52	0	8.928587	8.928710	8.928834	45	1" = 25	
906257	8.906387	30	2. 52		15	15	8.928957	8.929081	8.929204	30	2. 49	
906648	8.906778	15	3. 78		30	30	8.929328	8.929451	8.929575	15	3. 74	
907038	8.907168	0 22	4. 104		45	45	8.929698	8.929821	8.929945	0 7	4. 99	
907427	8.907557	45	1" = 26		53	0	8.930068	8.930191	8.930314	45	1" = 25	
907817	8.907947	30	2. 52		15	15	8.930437	8.930560	8.930684	30	2. 49	
908206	8.908335	15	3. 78		30	30	8.930807	8.930930	8.931052	15	3. 74	
908595	8.908724	0 21	4. 104		45	45	8.931175	8.931298	8.931421	0 6	4. 98	
908983	8.909112	45	1" = 26		54	0	8.931544	8.931667	8.931790	45	1" = 25	
909371	8.909500	30	2. 52		15	15	8.931912	8.932035	8.932158	30	2. 49	
909759	8.909888	15	3. 77		30	30	8.932280	8.932403	8.932525	15	3. 74	
910146	8.910275	0 20	4. 103		45	45	8.932648	8.932770	8.932893	0 5	4. 98	
910533	8.910662	45	1" = 26		55	0	8.933015	8.933137	8.933260	45	1" = 24	
910919	8.911048	30	2. 51		15	15	8.933382	8.933504	8.933627	30	2. 49	
911306	8.911434	15	3. 77		30	30	8.933749	8.933871	8.933993	15	3. 73	
911692	8.911820	0 19	4. 103		45	45	8.934115	8.934237	8.934359	0 4	4. 98	
912077	8.912206	45	1" = 26		56	0	8.934481	8.934603	8.934725	45	1" = 24	
912462	8.912591	30	2. 51		15	15	8.934847	8.934969	8.935091	30	2. 49	
912847	8.912976	15	3. 77		30	30	8.935212	8.935334	8.935456	15	3. 73	
913232	8.913360	0 18	4. 103		45	45	8.935577	8.935699	8.935821	0 3	4. 97	
913616	8.913744	45	1" = 26		57	0	8.935942	8.936064	8.936185	45	1" = 24	
914000	8.914128	30	2. 51		15	15	8.936307	8.936428	8.936550	30	2. 49	
914384	8.914511	15	3. 77		30	30	8.936671	8.936792	8.936914	15	3. 73	
914767	8.914894	0 17	4. 102		45	45	8.937035	8.937156	8.937277	0 2	4. 97	
915150	8.915277	45	1" = 25		58	0	8.937398	8.937520	8.937641	45	1" = 24	
915532	8.915659	30	2. 51		15	15	8.937762	8.937883	8.938004	30	2. 48	
915914	8.916042	15	3. 76		30	30	8.938125	8.938246	8.938366	15	3. 73	
916296	8.916423	0 16	4. 102		45	45	8.938487	8.938608	8.938729	0 1	4. 97	
916678	8.916805	45	1" = 25		59	0	8.938850	8.938970	8.939091	45	1" = 24	
917059	8.917186	30	2. 51		15	15	8.939212	8.939332	8.939453	30	2. 48	
917439	8.917566	15	3. 76		30	30	8.939573	8.939694	8.939814	15	3. 72	
917820	8.917947	0 15	4. 102		45	45	8.939935	8.940055	8.940176	0 0	4. 96	
10'	5'	Seconds	Minutes	Proport. parts.	Minutes	Seconds	Co-sine of 85 degrees, or Sine of 175 degrees.			Seconds	Minutes	Proport. parts.
15'	10'						15'	10'	5'			

LOGARITHMIC SINES.

Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees.			Minutes	Seconds	Proport. parts.	Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees.			Minutes	Seconds
		0'	5'	10'						0'	5'	10'		
0	0	8.940296	8.940416	8.940537	45	1"	24	15	0	8.961429	8.961543	8.961658	45	1"
	15	8.940657	8.940777	8.940897	30	2"	48		15	8.961772	8.961887	8.962001	30	2"
	30	8.941017	8.941138	8.941258	15	3"	72		30	8.962116	8.962230	8.962344	15	3"
	45	8.941378	8.941498	8.941618	0	4"	96		45	8.962459	8.962573	8.962687	0	4"
1	0	8.941738	8.941858	8.941977	45	1"	24	16	0	8.962801	8.962916	8.963030	45	1"
	15	8.942097	8.942217	8.942337	30	2"	48		15	8.963144	8.963258	8.963372	30	2"
	30	8.942457	8.942576	8.942696	15	3"	72		30	8.963486	8.963600	8.963714	15	3"
	45	8.942816	8.942935	8.943055	0	4"	96		45	8.963828	8.963942	8.964056	0	4"
2	0	8.943174	8.943294	8.943413	45	1"	24	17	0	8.964170	8.964284	8.964397	45	1"
	15	8.943533	8.943652	8.943772	30	2"	48		15	8.964511	8.964625	8.964739	30	2"
	30	8.943891	8.944010	8.944130	15	3"	72		30	8.964852	8.964966	8.965080	15	3"
	45	8.944249	8.944368	8.944487	0	4"	95		45	8.965193	8.965307	8.965420	0	4"
3	0	8.944606	8.944725	8.944845	45	1"	24	18	0	8.965534	8.965647	8.965761	45	1"
	15	8.944964	8.945083	8.945202	30	2"	48		15	8.965874	8.965987	8.966101	30	2"
	30	8.945321	8.945439	8.945558	15	3"	71		30	8.966214	8.966327	8.966441	15	3"
	45	8.945677	8.945796	8.945915	0	4"	95		45	8.966554	8.966667	8.966780	0	4"
4	0	8.946034	8.946152	8.946271	45	1"	24	19	0	8.966893	8.967007	8.967120	45	1"
	15	8.946390	8.946508	8.946627	30	2"	47		15	8.967233	8.967346	8.967459	30	2"
	30	8.946745	8.946864	8.946982	15	3"	71		30	8.967572	8.967685	8.967797	15	3"
	45	8.947101	8.947219	8.947338	0	4"	95		45	8.967910	8.968023	8.968136	0	4"
5	0	8.947456	8.947574	8.947693	45	1"	24	20	0	8.968249	8.968362	8.968474	45	1"
	15	8.947811	8.947929	8.948047	30	2"	47		15	8.968587	8.968700	8.968812	30	2"
	30	8.948166	8.948284	8.948402	15	3"	71		30	8.968925	8.969037	8.969150	15	3"
	45	8.948520	8.948638	8.948756	0	4"	94		45	8.969263	8.969375	8.969487	0	4"
6	0	8.948874	8.948992	8.949110	45	1"	24	21	0	8.969600	8.969712	8.969825	45	1"
	15	8.949228	8.949346	8.949463	30	2"	47		15	8.969937	8.970049	8.970162	30	2"
	30	8.949581	8.949699	8.949817	15	3"	71		30	8.970274	8.970386	8.970498	15	3"
	45	8.949934	8.950052	8.950170	0	4"	94		45	8.970610	8.970722	8.970835	0	4"
7	0	8.950287	8.950405	8.950522	45	1"	23	22	0	8.970947	8.971059	8.971171	45	1"
	15	8.950640	8.950757	8.950875	30	2"	47		15	8.971283	8.971395	8.971507	30	2"
	30	8.950992	8.951109	8.951227	15	3"	70		30	8.971619	8.971731	8.971842	15	3"
	45	8.951344	8.951461	8.951579	0	4"	94		45	8.971954	8.972066	8.972178	0	4"
8	0	8.951696	8.951813	8.951930	45	1"	23	23	0	8.972290	8.972401	8.972513	45	1"
	15	8.952047	8.952164	8.952281	30	2"	47		15	8.972625	8.972736	8.972848	30	2"
	30	8.952398	8.952515	8.952632	15	3"	70		30	8.972959	8.973071	8.973182	15	3"
	45	8.952749	8.952866	8.952983	0	4"	94		45	8.973294	8.973405	8.973517	0	4"
9	0	8.953100	8.953216	8.953333	45	1"	23	24	0	8.973628	8.973739	8.973851	45	1"
	15	8.953450	8.953567	8.953683	30	2"	47		15	8.973962	8.974073	8.974185	30	2"
	30	8.953800	8.953917	8.954033	15	3"	70		30	8.974296	8.974407	8.974518	15	3"
	45	8.954150	8.954266	8.954383	0	4"	93		45	8.974629	8.974740	8.974851	0	4"
10	0	8.954499	8.954616	8.954732	45	1"	23	25	0	8.974962	8.975073	8.975184	45	1"
	15	8.954848	8.954965	8.955081	30	2"	46		15	8.975295	8.975406	8.975517	30	2"
	30	8.955197	8.955313	8.955430	15	3"	70		30	8.975628	8.975739	8.975850	15	3"
	45	8.955546	8.955662	8.955778	0	4"	93		45	8.975960	8.976071	8.976182	0	4"
11	0	8.955894	8.956010	8.956126	45	1"	23	26	0	8.976293	8.976403	8.976514	45	1"
	15	8.956242	8.956358	8.956474	30	2"	46		15	8.976625	8.976735	8.976846	30	2"
	30	8.956590	8.956706	8.956821	15	3"	70		30	8.976956	8.977067	8.977177	15	3"
	45	8.956937	8.957053	8.957169	0	4"	93		45	8.977288	8.977398	8.977508	0	4"
12	0	8.957284	8.957400	8.957516	45	1"	23	27	0	8.977619	8.977729	8.977839	45	1"
	15	8.957631	8.957747	8.957862	30	2"	46		15	8.977950	8.978060	8.978170	30	2"
	30	8.957978	8.958093	8.958209	15	3"	69		30	8.978280	8.978391	8.978501	15	3"
	45	8.958324	8.958440	8.958555	0	4"	92		45	8.978611	8.978721	8.978831	0	4"
13	0	8.958670	8.958786	8.958901	45	1"	23	28	0	8.978941	8.979051	8.979161	45	1"
	15	8.959016	8.959131	8.959246	30	2"	46		15	8.979271	8.979381	8.979491	30	2"
	30	8.959362	8.959477	8.959592	15	3"	69		30	8.979600	8.979710	8.979820	15	3"
	45	8.959707	8.959822	8.959937	0	4"	92		45	8.979930	8.980040	8.980149	0	4"
14	0	8.960052	8.960167	8.960282	45	1"	23	29	0	8.980259	8.980369	8.980478	45	1"
	15	8.960396	8.960511	8.960626	30	2"	46		15	8.980588	8.980697	8.980807	30	2"
	30	8.960741	8.960856	8.960970	15	3"	69		30	8.980916	8.981026	8.981135	15	3"
	45	8.961085	8.961200	8.961314	0	4"	92		45	8.981245	8.981354	8.981464	0	4"
Minutes	Seconds	15'	10'	5'	Minutes	Seconds	Proport. parts.	Minutes	Seconds	15'	10'	5'	Minutes	Seconds
		Co-sine of 84 degrees, or Sine of 174 degrees.								Co-sine of 84 degrees, or Sine of 174 degrees.				

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5 degrees, or of 95 degrees.		Seconds	Minutes	Proport. parts.	Minutes	Seconds	Sine of 5 degrees, or Co-sine of 95 degrees.			Seconds	Minutes	Proport. parts.
5°	10°						0°	5°	10°			
.981682	.981792	45	1" = 22		45	0	9.000816	9.000921	9.001025	45	1" = 21	
.982010	.982119	30	2. 44		15	15	9.001130	9.001234	9.001338	30	2. 42	
.982338	.982447	15	3. 65		30	30	9.001443	9.001547	9.001652	15	3. 63	
.982665	.982774	0 29	4. 87		45	45	9.001756	9.001860	9.001965	0 14	4. 84	
.982992	.983101	45	1 = 22		46	0	9.002069	9.002173	9.002277	45	1 = 21	
.983319	.983428	30	2. 44		15	15	9.002381	9.002486	9.002590	30	2. 42	
.983645	.983754	15	3. 65		30	30	9.002694	9.002798	9.002902	15	3. 62	
.983972	.984080	0 28	4. 87		45	45	9.003006	9.003110	9.003214	0 13	4. 83	
.984298	.984406	45	1 = 22		47	0	9.003318	9.003422	9.003526	45	1 = 21	
.984623	.984732	30	2. 43		15	15	9.003630	9.003733	9.003837	30	2. 42	
.984949	.985057	15	3. 65		30	30	9.003941	9.004045	9.004149	15	3. 62	
.985274	.985383	0 27	4. 87		45	45	9.004252	9.004356	9.004460	0 12	4. 83	
.985599	.985708	45	1 = 22		48	0	9.004563	9.004667	9.004771	45	1 = 21	
.985924	.986032	30	2. 43		15	15	9.004874	9.004978	9.005081	30	2. 41	
.986249	.986357	15	3. 65		30	30	9.005185	9.005288	9.005392	15	3. 62	
.986573	.986681	0 26	4. 87		45	45	9.005495	9.005599	9.005702	0 11	4. 83	
.986897	.987005	45	1 = 22		49	0	9.005805	9.005909	9.006012	45	1 = 21	
.987221	.987329	30	2. 43		15	15	9.006115	9.006219	9.006322	30	2. 41	
.987545	.987652	15	3. 65		30	30	9.006425	9.006528	9.006631	15	3. 62	
.987868	.987976	0 25	4. 86		45	45	9.006734	9.006838	9.006941	0 10	4. 83	
.988191	.988299	45	1 = 22		50	0	9.007044	9.007147	9.007250	45	1 = 21	
.988514	.988622	30	2. 43		15	15	9.007353	9.007456	9.007559	30	2. 41	
.988836	.988944	15	3. 65		30	30	9.007662	9.007764	9.007867	15	3. 62	
.989159	.989266	0 24	4. 86		45	45	9.007970	9.008073	9.008176	0 9	4. 82	
.989481	.989588	45	1 = 21		51	0	9.008278	9.008381	9.008484	45	1 = 21	
.989803	.989910	30	2. 43		15	15	9.008587	9.008689	9.008792	30	2. 41	
.990125	.990232	15	3. 64		30	30	9.008895	9.008997	9.009100	15	3. 62	
.990446	.990553	0 23	4. 86		45	45	9.009202	9.009305	9.009407	0 8	4. 82	
.990767	.990874	45	1 = 21		52	0	9.009510	9.009612	9.009715	45	1 = 20	
.991088	.991195	30	2. 43		15	15	9.009817	9.009919	9.010022	30	2. 41	
.991409	.991516	15	3. 64		30	30	9.010124	9.010226	9.010329	15	3. 61	
.991729	.991836	0 22	4. 86		45	45	9.010431	9.010533	9.010635	0 7	4. 82	
.992050	.992156	45	1 = 21		53	0	9.010737	9.010840	9.010942	45	1 = 20	
.992370	.992476	30	2. 43		15	15	9.011044	9.011146	9.011248	30	2. 41	
.992689	.992796	15	3. 64		30	30	9.011350	9.011452	9.011554	15	3. 61	
.993009	.993115	0 21	4. 85		45	45	9.011656	9.011758	9.011860	0 6	4. 82	
.993328	.993435	45	1 = 21		54	0	9.011962	9.012063	9.012165	45	1 = 20	
.993647	.993754	30	2. 43		15	15	9.012267	9.012369	9.012471	30	2. 41	
.993966	.994072	15	3. 64		30	30	9.012572	9.012674	9.012776	15	3. 61	
.994285	.994391	0 20	4. 85		45	45	9.012878	9.012979	9.013081	0 5	4. 81	
.994603	.994709	45	1 = 21		55	0	9.013182	9.013284	9.013386	45	1 = 20	
.994921	.995027	30	2. 42		15	15	9.013487	9.013589	9.013690	30	2. 41	
.995239	.995345	15	3. 64		30	30	9.013791	9.013893	9.013994	15	3. 61	
.995557	.995662	0 19	4. 85		45	45	9.014096	9.014197	9.014298	0 4	4. 81	
.995874	.995980	45	1 = 21		56	0	9.014400	9.014501	9.014602	45	1 = 20	
.996191	.996297	30	2. 42		15	15	9.014703	9.014805	9.014906	30	2. 40	
.996508	.996614	15	3. 63		30	30	9.015007	9.015108	9.015209	15	3. 61	
.996825	.996930	0 18	4. 84		45	45	9.015310	9.015411	9.015512	0 3	4. 81	
.997141	.997247	45	1 = 21		57	0	9.015614	9.015715	9.015815	45	1 = 20	
.997457	.997563	30	2. 42		15	15	9.015916	9.016017	9.016118	30	2. 40	
.997773	.997879	15	3. 63		30	30	9.016219	9.016320	9.016421	15	3. 61	
.998089	.998194	0 17	4. 84		45	45	9.016522	9.016622	9.016723	0 2	4. 81	
.998405	.998510	45	1 = 21		58	0	9.016824	9.016925	9.017025	45	1 = 20	
.998720	.998825	30	2. 42		15	15	9.017126	9.017227	9.017327	30	2. 40	
.999035	.999140	15	3. 63		30	30	9.017428	9.017528	9.017629	15	3. 60	
.999350	.999455	0 16	4. 84		45	45	9.017730	9.017830	9.017931	0 1	4. 80	
.999664	.999769	45	1 = 21		59	0	9.018031	9.018131	9.018232	45	1 = 20	
.999979	.999984	30	2. 42		15	15	9.018332	9.018433	9.018533	30	2. 40	
.000293	.000398	15	3. 63		30	30	9.018633	9.018733	9.018834	15	3. 60	
.000607	.000711	0 15	4. 84		45	45	9.018934	9.019034	9.019134	0 0	4. 80	
10°	5°	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15°	10°	5°	Seconds	Minutes	Proport. parts.
of 84 degrees, or of 174 degrees.							Co-sine of 84 degrees, or Sine of 174 degrees.					

LOGARITHMIC SINES.

Minutes		Seconds		Sine of 6 degrees, or Co-sine of 96 degrees.			Seconds		Minutes		Proport. parts.	Minutes		Seconds		Sines of 6 degrees, or Co-sine of 96 degrees.			Seconds		Minutes		Proport. parts.							
				0"	5"	10"										0"	5"	10"												
0	0	0	0	0.019235	0.019335	0.019435	45	1"	= 20	15	0	0	0	0	0.036896	0.036992	0.037088	45	1"	= 20	15	0	0	0	0	0.036896	0.036992	0.037088		
15	0	15	0	0.019535	0.019635	0.019735	30	2.	40	15	15	0	15	0	0.037184	0.037280	0.037376	30	2.	40	15	15	0	15	0	0.037184	0.037280	0.037376		
30	0	30	0	0.019835	0.019935	0.020035	15	3.	60	30	30	0	30	0	0.037472	0.037568	0.037664	45	3.	60	45	30	0	45	30	0	0.037472	0.037568	0.037664	
45	0	45	0	0.020135	0.020235	0.020335	0	4.	80	0	45	45	0	45	0	0.037760	0.037856	0.037952	0	4.	80	0	45	45	0	45	0	0.037760	0.037856	0.037952
1	0	1	0	0.020435	0.020535	0.020635	45	1 =	20	16	0	0	0	0	0.038048	0.038144	0.038239	45	1 =	20	16	0	0	0	0	0.038048	0.038144	0.038239		
15	0	15	0	0.020734	0.020834	0.020934	30	2.	40	15	15	0	15	0	0.038335	0.038431	0.038527	30	2.	40	15	15	0	15	0	0.038335	0.038431	0.038527		
30	0	30	0	0.021034	0.021134	0.021233	15	3.	60	30	30	0	30	0	0.038623	0.038718	0.038814	45	3.	60	45	30	0	45	30	0	0.038623	0.038718	0.038814	
45	0	45	0	0.021333	0.021433	0.021532	0	4.	80	0	45	45	0	45	0	0.038910	0.039005	0.039101	0	4.	80	0	45	45	0	45	0	0.038910	0.039005	0.039101
2	0	2	0	0.021632	0.021731	0.021831	45	1 =	20	17	0	0	0	0	0.039197	0.039292	0.039388	45	1 =	20	17	0	0	0	0	0.039197	0.039292	0.039388		
15	0	15	0	0.021931	0.022030	0.022130	30	2.	40	15	15	0	15	0	0.039483	0.039579	0.039674	30	2.	40	15	15	0	15	0	0.039483	0.039579	0.039674		
30	0	30	0	0.022229	0.022329	0.022428	15	3.	60	30	30	0	30	0	0.039770	0.039865	0.039961	45	3.	60	45	30	0	45	30	0	0.039770	0.039865	0.039961	
45	0	45	0	0.022527	0.022627	0.022726	0	4.	80	0	45	45	0	45	0	0.040056	0.040152	0.040247	0	4.	80	0	45	45	0	45	0	0.040056	0.040152	0.040247
3	0	3	0	0.022825	0.022925	0.023024	45	1 =	20	18	0	0	0	0	0.040342	0.040438	0.040533	45	1 =	20	18	0	0	0	0	0.040342	0.040438	0.040533		
15	0	15	0	0.023123	0.023223	0.023322	30	2.	40	15	15	0	15	0	0.040628	0.040724	0.040819	30	2.	40	15	15	0	15	0	0.040628	0.040724	0.040819		
30	0	30	0	0.023421	0.023520	0.023619	15	3.	59	30	30	0	30	0	0.040914	0.041009	0.041105	45	3.	59	45	30	0	45	30	0	0.040914	0.041009	0.041105	
45	0	45	0	0.023718	0.023818	0.023917	0	4.	79	0	45	45	0	45	0	0.041200	0.041295	0.041390	0	4.	79	0	45	45	0	45	0	0.041200	0.041295	0.041390
4	0	4	0	0.024016	0.024115	0.024214	45	1 =	20	19	0	0	0	0	0.041485	0.041580	0.041675	45	1 =	20	19	0	0	0	0	0.041485	0.041580	0.041675		
15	0	15	0	0.024313	0.024412	0.024511	30	2.	40	15	15	0	15	0	0.041770	0.041866	0.041961	30	2.	40	15	15	0	15	0	0.041770	0.041866	0.041961		
30	0	30	0	0.024610	0.024709	0.024807	15	3.	59	30	30	0	30	0	0.042056	0.042150	0.042245	45	3.	59	45	30	0	45	30	0	0.042056	0.042150	0.042245	
45	0	45	0	0.024906	0.025005	0.025104	0	4.	79	0	45	45	0	45	0	0.042340	0.042435	0.042530	0	4.	79	0	45	45	0	45	0	0.042340	0.042435	0.042530
5	0	5	0	0.025203	0.025302	0.025400	45	1 =	20	20	0	0	0	0	0.042625	0.042720	0.042815	45	1 =	20	20	0	0	0	0	0.042625	0.042720	0.042815		
15	0	15	0	0.025499	0.025598	0.025696	30	2.	39	15	15	0	15	0	0.042909	0.043004	0.043099	30	2.	39	15	15	0	15	0	0.042909	0.043004	0.043099		
30	0	30	0	0.025795	0.025894	0.025992	15	3.	59	30	30	0	30	0	0.043194	0.043288	0.043383	45	3.	59	45	30	0	45	30	0	0.043194	0.043288	0.043383	
45	0	45	0	0.026091	0.026189	0.026288	0	4.	79	0	45	45	0	45	0	0.043478	0.043572	0.043667	0	4.	79	0	45	45	0	45	0	0.043478	0.043572	0.043667
6	0	6	0	0.026387	0.026485	0.026583	45	1 =	20	21	0	0	0	0	0.043762	0.043856	0.043951	45	1 =	20	21	0	0	0	0	0.043762	0.043856	0.043951		
15	0	15	0	0.026682	0.026780	0.026879	30	2.	39	15	15	0	15	0	0.044045	0.044140	0.044234	30	2.	39	15	15	0	15	0	0.044045	0.044140	0.044234		
30	0	30	0	0.026977	0.027076	0.027174	15	3.	59	30	30	0	30	0	0.044329	0.044423	0.044518	45	3.	59	45	30	0	45	30	0	0.044329	0.044423	0.044518	
45	0	45	0	0.027272	0.027370	0.027469	0	4.	79	0	45	45	0	45	0	0.044612	0.044707	0.044801	0	4.	79	0	45	45	0	45	0	0.044612	0.044707	0.044801
7	0	7	0	0.027567	0.027665	0.027763	45	1 =	20	22	0	0	0	0	0.044895	0.044990	0.045084	45	1 =	20	22	0	0	0	0	0.044895	0.044990	0.045084		
15	0	15	0	0.027862	0.027960	0.028058	30	2.	39	15	15	0	15	0	0.045178	0.045273	0.045367	30	2.	39	15	15	0	15	0	0.045178	0.045273	0.045367		
30	0	30	0	0.028156	0.028254	0.028352	15	3.	59	30	30	0	30	0	0.045461	0.045555	0.045650	45	3.	59	45	30	0	45	30	0	0.045461	0.045555	0.045650	
45	0	45	0	0.028450	0.028548	0.028646	0	4.	78	0	45	45	0	45	0	0.045744	0.045838	0.045932	0	4.	78	0	45	45	0	45	0	0.045744	0.045838	0.045932
8	0	8	0	0.028744	0.028842	0.028940	45	1 =	20	23	0	0	0	0	0.046028	0.046120	0.046214	45	1 =	20	23	0	0	0	0	0.046028	0.046120	0.046214		
15	0	15	0	0.029038	0.029136	0.029234	30	2.	39	15	15	0	15	0	0.046308	0.046402	0.046496	30	2.	39	15	15	0	15	0	0.046308	0.046402	0.046496		
30	0	30	0	0.029332	0.029429	0.029527	15	3.	59	30	30	0	30	0	0.046590	0.046684	0.046778	45	3.	59	45	30	0	45	30	0	0.046590	0.046684	0.046778	
45	0	45	0	0.029625	0.029723	0.029821	0	4.	78	0	45	45	0	45	0	0.046872	0.046966	0.047060	0	4.	78	0	45	45	0	45	0	0.046872	0.046966	0.047060
9	0	9	0	0.029918	0.030016	0.030114	45	1 =	20	24	0	0	0	0	0.047154	0.047248	0.047342	45	1 =	20	24	0	0	0	0	0.047154	0.047248	0.047342		
15	0	15	0	0.030211	0.030309	0.030406	30	2.	39	15	15	0	15	0	0.047435	0.047529	0.047623	30	2.	39	15	15	0	15	0	0.047435	0.047529	0.047623		
30	0	30	0	0.030504	0.030602	0.030699	15	3.	59	30	30	0	30	0	0.047717	0.047810	0.047904	45	3.	59	45	30	0	45	30	0	0.047717	0.047810	0.047904	
45	0	45	0	0.030797	0.030894	0.030992	0	4.	78	0	45	45	0	45	0	0.047998	0.048091	0.048185	0	4.	78	0	45	45	0	45	0	0.047998	0.048091	0.048185
10	0	10	0	0.031089	0.031187	0.031284	45	1 =	19	25	0	0	0	0	0.048279	0.048372	0.048466	45	1 =	19	25	0	0	0	0	0.048279	0.048372	0.048466		
15	0	15	0	0.031381	0.031479	0.031576	30	2.	39	15	15	0	15	0	0.048559	0.048653	0.048746	30	2.	39	15	15	0	15	0	0.048559	0.048653	0.048746		
30	0	30	0	0.031673	0.031771	0.031868	15	3.	58	30	30	0	30	0	0.048840	0.048933	0.049027	45	3.	58	45	30	0	45	30	0	0.048840	0.048933	0.049027	
45	0	45	0	0.031965	0.032062	0.032160	0	4.	78	0	45	45	0	45	0	0.049120	0.049214	0.049307	0	4.	78	0	45	45	0	45	0	0.049120	0.049214	0.049307
11	0	11	0	0.032257	0.032354	0.032451	45	1 =	19	26	0	0	0	0	0.049401	0.049494	0.049587	45	1 =	19	26	0	0	0	0	0.049401	0.049494	0.049587		
15	0	15	0	0.032548	0.032645	0.032742	30	2.	39	15	15	0	15	0	0.049681	0.049774	0.049867	30	2.	39	15	15	0	15	0	0.049681	0.049774	0.049867		
30	0	30	0	0.032839	0.032936	0.033033	15	3.	58	30	30	0	30	0	0.049960	0.050054	0.050147	45	3.	58	45	30	0	45	30	0	0.049960	0.050054	0.050147	
45	0	45	0	0.033130	0.033227	0.033324	0	4.	78																					

LOGARITHMIC SINES.

of 6 degrees, or of 96 degrees.		Seconds	Minutes	Proport. parts.	Minutes	Seconds	Sine of 6 degrees, or Co-sine of 96 degrees.			Seconds	Minutes	Proport. parts.
5'	10'						0'	5'	10'			
59.9.053951	9.054044	45	1" = 18		45	0	9.070176	9.070265	9.070354	45	1" = 18	
58.9.054228	9.054321	30	2. 37		15	15	9.070443	9.070532	9.070621	30	2. 36	
57.9.054505	9.054597	15	3. 55		30	30	9.070709	9.070798	9.070887	15	3. 53	
56.9.054782	9.054874	0	4. 74		45	45	9.071076	9.071165	9.071253	0	4. 71	
55.9.055058	9.055150	45	1" = 18		46	0	9.071242	9.071331	9.071420	45	1" = 18	
54.9.055335	9.055427	30	2. 37		15	15	9.071508	9.071597	9.071686	30	2. 35	
53.9.055611	9.055703	15	3. 55		30	30	9.071774	9.071863	9.071951	15	3. 53	
52.9.055887	9.055979	0	4. 74		45	45	9.072040	9.072129	9.072217	0	4. 71	
51.9.056163	9.056254	45	1" = 18		47	0	9.072306	9.072394	9.072483	45	1" = 18	
50.9.056438	9.056530	30	2. 37		15	15	9.072571	9.072659	9.072748	30	2. 35	
49.9.056714	9.056805	15	3. 55		30	30	9.072836	9.072925	9.073013	15	3. 53	
48.9.056989	9.057081	0	4. 73		45	45	9.073101	9.073190	9.073278	0	4. 71	
47.9.057264	9.057356	45	1" = 18		48	0	9.073366	9.073455	9.073543	45	1" = 18	
46.9.057539	9.057631	30	2. 37		15	15	9.073631	9.073719	9.073808	30	2. 35	
45.9.057814	9.057905	15	3. 55		30	30	9.073896	9.073984	9.074072	15	3. 53	
44.9.058088	9.058180	0	4. 73		45	45	9.074160	9.074248	9.074336	0	4. 71	
43.9.058363	9.058454	45	1" = 18		49	0	9.074424	9.074513	9.074601	45	1" = 18	
42.9.058637	9.058728	30	2. 37		15	15	9.074689	9.074777	9.074865	30	2. 35	
41.9.058911	9.059002	15	3. 55		30	30	9.074953	9.075040	9.075128	15	3. 53	
40.9.059185	9.059276	0	4. 73		45	45	9.075216	9.075304	9.075392	0	4. 70	
39.9.059458	9.059550	45	1" = 18		50	0	9.075480	9.075568	9.075656	45	1" = 18	
38.9.059732	9.059823	30	2. 36		15	15	9.075743	9.075831	9.075919	30	2. 35	
37.9.060005	9.060096	15	3. 55		30	30	9.076007	9.076094	9.076182	15	3. 53	
36.9.060278	9.060369	0	4. 73		45	45	9.076270	9.076358	9.076445	0	4. 70	
35.9.060551	9.060642	45	1" = 18		51	0	9.076533	9.076621	9.076708	45	1" = 18	
34.9.060824	9.060915	30	2. 36		15	15	9.076796	9.076883	9.076971	30	2. 35	
33.9.061097	9.061188	15	3. 55		30	30	9.077058	9.077146	9.077233	15	3. 53	
32.9.061369	9.061460	0	4. 73		45	45	9.077321	9.077408	9.077496	0	4. 70	
31.9.061642	9.061732	45	1" = 18		52	0	9.077583	9.077671	9.077758	45	1" = 17	
30.9.061914	9.062004	30	2. 36		15	15	9.077845	9.077933	9.078020	30	2. 35	
29.9.062186	9.062276	15	3. 54		30	30	9.078107	9.078195	9.078282	15	3. 52	
28.9.062458	9.062548	0	4. 72		45	45	9.078369	9.078457	9.078544	0	4. 70	
27.9.062729	9.062820	45	1" = 18		53	0	9.078631	9.078718	9.078805	45	1" = 17	
26.9.063001	9.063091	30	2. 36		15	15	9.078893	9.078980	9.079067	30	2. 35	
25.9.063272	9.063362	15	3. 54		30	30	9.079154	9.079241	9.079328	15	3. 52	
24.9.063543	9.063633	0	4. 72		45	45	9.079415	9.079502	9.079589	0	4. 70	
23.9.063814	9.063904	45	1" = 18		54	0	9.079676	9.079763	9.079850	45	1" = 17	
22.9.064085	9.064175	30	2. 36		15	15	9.079937	9.080024	9.080111	30	2. 35	
21.9.064355	9.064445	15	3. 54		30	30	9.080198	9.080285	9.080372	15	3. 52	
20.9.064626	9.064716	0	4. 72		45	45	9.080458	9.080545	9.080632	0	4. 69	
19.9.064896	9.064986	45	1" = 18		55	0	9.080719	9.080806	9.080892	45	1" = 17	
18.9.065166	9.065256	30	2. 36		15	15	9.080979	9.081066	9.081153	30	2. 35	
17.9.065436	9.065526	15	3. 54		30	30	9.081239	9.081326	9.081413	15	3. 52	
16.9.065706	9.065795	0	4. 72		45	45	9.081499	9.081586	9.081672	0	4. 69	
15.9.065975	9.066065	45	1" = 18		56	0	9.081759	9.081846	9.081932	45	1" = 17	
14.9.066244	9.066334	30	2. 36		15	15	9.082019	9.082105	9.082192	30	2. 35	
13.9.066514	9.066603	15	3. 54		30	30	9.082278	9.082365	9.082451	15	3. 52	
12.9.066783	9.066873	0	4. 72		45	45	9.082538	9.082624	9.082710	0	4. 69	
11.9.067052	9.067141	45	1" = 18		57	0	9.082797	9.082883	9.082969	45	1" = 17	
10.9.067320	9.067410	30	2. 36		15	15	9.083056	9.083142	9.083228	30	2. 35	
9.9.067589	9.067678	15	3. 54		30	30	9.083315	9.083401	9.083487	15	3. 52	
8.9.067857	9.067947	0	4. 72		45	45	9.083573	9.083659	9.083746	0	4. 69	
7.9.068125	9.068215	45	1" = 18		58	0	9.083832	9.083918	9.084004	45	1" = 17	
6.9.068393	9.068483	30	2. 36		15	15	9.084090	9.084176	9.084262	30	2. 34	
5.9.068661	9.068751	15	3. 54		30	30	9.084348	9.084434	9.084520	15	3. 52	
4.9.068929	9.069018	0	4. 71		45	45	9.084606	9.084692	9.084778	0	4. 69	
3.9.069197	9.069286	45	1" = 18		59	0	9.084864	9.084950	9.085036	45	1" = 17	
2.9.069464	9.069553	30	2. 36		15	15	9.085122	9.085208	9.085294	30	2. 34	
1.9.069731	9.069820	15	3. 53		30	30	9.085380	9.085466	9.085551	15	3. 52	
0.9.069998	9.070087	0	4. 71		45	45	9.085637	9.085723	9.085809	0	4. 69	
10'	5'	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15'	10'	5'	Seconds	Minutes	Proport. parts.
of 83 degrees, or of 173 degrees.							Co-sin of 83 degrees, or Sine of 173 degrees.					

LOGARITHMIC SINES.

Minutes		Seconds		Sine of 7 degrees, or Co-sine of 97 degrees.			Seconds		Minutes		Proper. parts.	Minutes		Seconds		Sine of 7 degrees, or Co-sine of 97 degrees.			Seconds		
				0'	5'	10'												0'	5'	10'	
0	0	9.085895	9.085980	9.086066	45	1" = 17	15	0	9.101056	9.101139	9.101221	45	15	0	9.101304	9.101387	9.101469	30	2. 34		
	15	9.086152	9.086237	9.086323	30	2. 34		15	9.101552	9.101635	9.101717	15	30	0	9.101800	9.101883	9.101965	0	3. 51		
	30	9.086409	9.086494	9.086580	15	3. 51		30	9.102048	9.102130	9.102213	45	45	0	9.102295	9.102378	9.102460	30	4. 68		
	45	9.086665	9.086751	9.086837	0	4. 68		45	9.102543	9.102625	9.102708	15	16	0	9.102790	9.102873	9.102955	0	1 = 17		
1	0	9.086922	9.087008	9.087093	45	1 = 17		16	0	9.103037	9.103120	9.103202	45	15	0	9.103284	9.103367	9.103449	30	2. 34	
	15	9.087179	9.087264	9.087350	30	2. 34		15	9.103531	9.103614	9.103696	15	30	0	9.103778	9.103860	9.103942	0	3. 51		
	30	9.087435	9.087520	9.087606	15	3. 51		45	9.104025	9.104107	9.104189	45	45	0	9.104271	9.104353	9.104435	30	4. 68		
	45	9.087691	9.087777	9.087862	0	4. 68		17	0	9.104517	9.104600	9.104682	15	15	0	9.104764	9.104846	9.104928	0	1 = 17	
2	0	9.087947	9.088033	9.088118	45	1 = 17		18	0	9.105010	9.105092	9.105174	45	15	0	9.105256	9.105338	9.105419	30	2. 34	
	15	9.088203	9.088289	9.088374	30	2. 34		15	9.105501	9.105583	9.105665	15	30	0	9.105747	9.105829	9.105911	0	3. 51		
	30	9.088459	9.088544	9.088629	15	3. 51		45	9.105992	9.106074	9.106156	45	45	0	9.106238	9.106320	9.106401	30	4. 68		
	45	9.088715	9.088800	9.088885	0	4. 68		19	0	9.106483	9.106565	9.106646	15	15	0	9.106728	9.106810	9.106891	0	1 = 17	
3	0	9.088970	9.089055	9.089140	45	1 = 17		20	0	9.106973	9.107055	9.107136	45	15	0	9.107218	9.107299	9.107381	30	2. 34	
	15	9.089225	9.089310	9.089396	30	2. 34		15	9.107462	9.107544	9.107625	15	30	0	9.107707	9.107788	9.107870	0	3. 51		
	30	9.089481	9.089566	9.089651	15	3. 51		45	9.107951	9.108033	9.108114	45	45	0	9.108195	9.108277	9.108358	30	4. 68		
	45	9.089736	9.089821	9.089905	0	4. 68		21	0	9.108440	9.108521	9.108602	15	15	0	9.108683	9.108765	9.108846	0	1 = 17	
4	0	9.089990	9.090075	9.090160	45	1 = 17		22	0	9.108927	9.109008	9.109090	45	15	0	9.109171	9.109252	9.109333	30	2. 34	
	15	9.090245	9.090330	9.090415	30	2. 34		15	9.109414	9.109496	9.109577	15	30	0	9.109658	9.109739	9.109820	0	3. 51		
	30	9.090500	9.090584	9.090669	15	3. 51		45	9.109901	9.109982	9.110063	45	45	0	9.110144	9.110225	9.110306	30	4. 67		
	45	9.090754	9.090839	9.090924	0	4. 67		23	0	9.110387	9.110468	9.110549	15	15	0	9.110630	9.110711	9.110792	0	1 = 17	
5	0	9.091008	9.091093	9.091178	45	1 = 17		24	0	9.110873	9.110954	9.111034	45	15	0	9.111115	9.111196	9.111277	30	2. 33	
	15	9.091262	9.091347	9.091432	30	2. 34		15	9.111358	9.111438	9.111519	15	30	0	9.111600	9.111681	9.111761	0	3. 50		
	30	9.091516	9.091601	9.091685	15	3. 51		45	9.111842	9.111923	9.112003	45	45	0	9.112084	9.112165	9.112245	30	4. 67		
	45	9.091770	9.091855	9.091939	0	4. 67		25	0	9.112326	9.112406	9.112487	15	15	0	9.112568	9.112648	9.112729	0	1 = 17	
6	0	9.092024	9.092108	9.092193	45	1 = 17		26	0	9.112809	9.112890	9.112970	45	15	0	9.113051	9.113131	9.113212	30	2. 33	
	15	9.092277	9.092362	9.092446	30	2. 34		15	9.113292	9.113372	9.113453	15	30	0	9.113533	9.113614	9.113694	0	3. 50		
	30	9.092531	9.092615	9.092699	15	3. 51		45	9.113774	9.113855	9.113935	45	45	0	9.114015	9.114095	9.114176	30	4. 67		
	45	9.092784	9.092868	9.092952	0	4. 67		27	0	9.114256	9.114336	9.114416	15	15	0	9.114497	9.114577	9.114657	0	1 = 17	
7	0	9.093037	9.093121	9.093205	45	1 = 17		28	0	9.114737	9.114817	9.114897	45	15	0	9.114977	9.115058	9.115138	30	2. 33	
	15	9.093290	9.093374	9.093458	30	2. 34		15	9.115218	9.115298	9.115378	15	30	0	9.115458	9.115538	9.115618	0	3. 50		
	30	9.093542	9.093627	9.093711	15	3. 51		45												4. 66	
	45	9.093795	9.093879	9.093963	0	4. 67		29													
8	0	9.094047	9.094132	9.094216	45	1 = 17		30													
	15	9.094300	9.094384	9.094468	30	2. 34		15													
	30	9.094552	9.094636	9.094720	15	3. 50		45													
	45	9.094804	9.094888	9.094972	0	4. 67		45													
9	0	9.095056	9.095140	9.095223	45	1 = 17		45													
	15	9.095307	9.095391	9.095475	30	2. 34		15													
	30	9.095559	9.095643	9.095727	15	3. 50		30													
	45	9.095810	9.095894	9.095978	0	4. 67		45													
10	0	9.096062	9.096145	9.096229	45	1 = 17		45													
	15	9.096313	9.096396	9.096480	30	2. 33		15													
	30	9.096564	9.096647	9.096731	15	3. 50		30													
	45	9.096814	9.096898	9.096982	0	4. 67		45													
11	0	9.097065	9.097149	9.097232	45	1 = 17		45													
	15	9.097316	9.097399	9.097483	30	2. 33		15													
	30	9.097566	9.097649	9.097733	15	3. 50		30													
	45	9.097816	9.097900	9.097983	0	4. 67		45													
12	0	9.098066	9.098150	9.098233	45	1 = 17		45													
	15	9.098316	9.098400	9.098483	30	2. 33		15													
	30	9.098566	9.098649	9.098732	15	3. 50		30													
	45	9.098816	9.098899	9.098982	0	4. 67		45													
13	0	9.099065	9.099148	9.099231	45	1 = 17		45													
	15	9.099314	9.099398	9.099481	30	2. 33		15													
	30	9.099564	9.099647	9.099730	15	3. 50		30													
	45	9.099813	9.099896	9.099979	0	4. 66		45													
14	0	9.100062	9.100145	9.100228	45	1 = 17		45													
	15	9.100310	9.100393	9.100476	30	2. 33		15													
	30	9.100559	9.100642	9.100725	15	3. 50		30													
	45	9.100808	9.100890	9.100973	0	4. 66		45													
Minutes	Seconds	15'	10'	5'	Seconds	Minutes	Proper. parts.	Minutes	Seconds	15'	10'	5'	Seconds								
				Co-sine of 82 degrees, or Sine of 172 degrees.								Co-sine of 82 degrees, or Sine of 172 degrees.									

LOGARITHMIC SINES.

Sine of 7 degrees, or Co-sine of 97 degrees.				Sine of 7 degrees, or Co-sine of 97 degrees.				Sine of 7 degrees, or Co-sine of 97 degrees.													
5"		10"		Seconds	Minutes	Proport. parts.		0"		5"		10"		Seconds	Minutes	Proport. parts.					
98	9.115778	9.115858	45	1" = 16	45	0	9.129854	9.129931	9.130009	45	1" = 15										
38	9.116017	9.116097	30	2. 32	15	15	9.130086	9.130163	9.130241	30	2. 31										
77	9.116257	9.116337	15	3. 48	30	30	9.130318	9.130395	9.130472	15	3. 46										
17	9.116497	9.116576	0 20	4. 64	45	45	9.130550	9.130627	9.130704	0 14	4. 62										
56	9.116736	9.116816	45	1 = 16	46	0	9.130781	9.130858	9.130936	45	1 = 15										
96	9.116975	9.117055	30	2. 32	15	15	9.131013	9.131090	9.131167	30	2. 31										
35	9.117214	9.117294	15	3. 48	30	30	9.131244	9.131321	9.131398	15	3. 46										
74	9.117453	9.117533	0 28	4. 64	45	45	9.131475	9.131552	9.131629	0 13	4. 62										
13	9.117692	9.117772	45	1 = 16	47	0	9.131706	9.131784	9.131861	45	1 = 15										
51	9.117931	9.118010	30	2. 32	15	15	9.131937	9.132014	9.132091	30	2. 31										
90	9.118169	9.118249	15	3. 48	30	30	9.132168	9.132245	9.132322	15	3. 46										
28	9.118408	9.118487	0 27	4. 64	45	45	9.132399	9.132476	9.132553	0 12	4. 62										
57	9.118646	9.118726	45	1 = 16	48	0	9.132630	9.132707	9.132784	45	1 = 15										
35	9.118884	9.118964	30	2. 32	15	15	9.132860	9.132937	9.133014	30	2. 31										
13	9.119122	9.119202	15	3. 48	30	30	9.133091	9.133167	9.133244	15	3. 46										
31	9.119360	9.119439	0 26	4. 63	45	45	9.133321	9.133398	9.133474	0 11	4. 61										
19	9.119598	9.119677	45	1 = 16	49	0	9.133551	9.133628	9.133704	45	1 = 15										
77	9.119836	9.119915	30	2. 32	15	15	9.133781	9.133858	9.133934	30	2. 31										
14	9.120073	9.120152	15	3. 47	30	30	9.134011	9.134087	9.134164	15	3. 46										
12	9.120311	9.120390	0 25	4. 63	45	45	9.134241	9.134317	9.134394	0 10	4. 61										
10	9.120548	9.120627	45	1 = 16	50	0	9.134470	9.134547	9.134623	45	1 = 15										
16	9.120785	9.120864	30	2. 32	15	15	9.134700	9.134776	9.134853	30	2. 31										
13	9.121022	9.121101	15	3. 47	30	30	9.134929	9.135006	9.135082	15	3. 46										
10	9.121259	9.121338	0 24	4. 63	45	45	9.135158	9.135235	9.135311	0 9	4. 61										
79	9.121496	9.121574	45	1 = 16	51	0	9.135388	9.135464	9.135540	45	1 = 15										
13	9.121732	9.121811	30	2. 32	15	15	9.135617	9.135693	9.135769	30	2. 31										
10	9.121969	9.122047	15	3. 47	30	30	9.135845	9.135922	9.135998	15	3. 46										
16	9.122205	9.122284	0 23	4. 63	45	45	9.136074	9.136150	9.136227	0 8	4. 61										
12	9.122441	9.122520	45	1 = 16	52	0	9.136303	9.136379	9.136455	45	1 = 15										
10	9.122677	9.122756	30	2. 31	15	15	9.136531	9.136607	9.136684	30	2. 30										
59	9.122913	9.122992	15	3. 47	30	30	9.136760	9.136836	9.136912	15	3. 46										
0	9.123149	9.123228	0 22	4. 63	45	45	9.136988	9.137064	9.137140	0 7	4. 61										
69	9.123385	9.123463	45	1 = 16	53	0	9.137216	9.137292	9.137368	45	1 = 15										
29	9.123620	9.123699	30	2. 31	15	15	9.137444	9.137520	9.137596	30	2. 30										
79	9.123856	9.123934	15	3. 47	30	30	9.137672	9.137748	9.137824	15	3. 46										
39	9.124091	9.124169	0 21	4. 63	45	45	9.137900	9.137976	9.138052	0 6	4. 61										
89	9.124326	9.124404	45	1 = 16	54	0	9.138128	9.138203	9.138279	45	1 = 15										
39	9.124561	9.124639	30	2. 31	15	15	9.138355	9.138431	9.138507	30	2. 30										
89	9.124796	9.124874	15	3. 47	30	30	9.138583	9.138658	9.138734	15	3. 45										
39	9.125031	9.125109	0 20	4. 63	45	45	9.138810	9.138886	9.138961	0 5	4. 61										
79	9.125265	9.125344	45	1 = 16	55	0	9.139037	9.139113	9.139188	45	1 = 15										
29	9.125500	9.125578	30	2. 31	15	15	9.139264	9.139340	9.139415	30	2. 30										
69	9.125734	9.125812	15	3. 47	30	30	9.139491	9.139567	9.139642	15	3. 45										
19	9.125969	9.126047	0 19	4. 62	45	45	9.139718	9.139793	9.139869	0 4	4. 60										
59	9.126203	9.126281	45	1 = 16	56	0	9.139945	9.140020	9.140096	45	1 = 15										
99	9.126437	9.126515	30	2. 31	15	15	9.140171	9.140247	9.140322	30	2. 30										
39	9.126671	9.126749	15	3. 47	30	30	9.140398	9.140473	9.140548	15	3. 45										
69	9.126904	9.126982	0 18	4. 62	45	45	9.140624	9.140699	9.140775	0 3	4. 60										
29	9.127138	9.127216	45	1 = 16	57	0	9.140850	9.140925	9.141001	45	1 = 15										
49	9.127371	9.127449	30	2. 31	15	15	9.141076	9.141152	9.141227	30	2. 30										
79	9.127605	9.127683	15	3. 47	30	30	9.141302	9.141377	9.141453	15	3. 45										
29	9.127838	9.127916	0 17	4. 62	45	45	9.141528	9.141603	9.141679	0 2	4. 60										
39	9.128071	9.128149	45	1 = 16	58	0	9.141754	9.141829	9.141904	45	1 = 15										
69	9.128304	9.128382	30	2. 31	15	15	9.141979	9.142055	9.142130	30	2. 30										
99	9.128537	9.128615	15	3. 47	30	30	9.142205	9.142280	9.142355	15	3. 45										
29	9.128770	9.128847	0 16	4. 62	45	45	9.142430	9.142505	9.142580	0 1	4. 60										
59	9.129002	9.129080	45	1 = 15	59	0	9.142656	9.142731	9.142806	45	1 = 15										
79	9.129235	9.129312	30	2. 31	15	15	9.142881	9.142956	9.143031	30	2. 30										
29	9.129467	9.129544	15	3. 46	30	30	9.143106	9.143181	9.143256	15	3. 45										
29	9.129699	9.129777	0 15	4. 62	45	45	9.143331	9.143406	9.143480	0 0	4. 60										
10"		5"		Seconds	Minutes	Proport. parts.	15"				10"				5"				Seconds	Minutes	Proport. parts.
Sine of 82 degrees, or Co-sine of 172 degrees.				Sine of 82 degrees, or Co-sine of 172 degrees.				Sine of 82 degrees, or Co-sine of 172 degrees.				Sine of 82 degrees, or Co-sine of 172 degrees.				Sine of 82 degrees, or Co-sine of 172 degrees.					

LOGARITHMIC SINES.

Minutes		Sine of 8 degrees, or Co-sine of 98 degrees.			Seconds		Minutes		Proport. parts.		Minutes		Sine of 8 degrees, or Co-sine of 98 degrees.		
		0'	5'	10'									0'	5'	10'
0	0	9.143555	9.143630	9.143705	45	1" = 15	15	0	9.156830	9.156902	9.156975				
	15	9.143780	9.143855	9.143930	30	2. 30		15	9.157047	9.157120	9.157193				
	30	9.144005	9.144079	9.144154	15	3. 45		30	9.157265	9.157338	9.157410				
	45	9.144229	9.144304	9.144379	0 59	4. 60		45	9.157483	9.157555	9.157628				
1	0	9.144453	9.144528	9.144603	45	1 = 15	16	0	9.157700	9.157772	9.157845				
	15	9.144677	9.144752	9.144827	30	2. 30		15	9.157917	9.157990	9.158062				
	30	9.144902	9.144976	9.145051	15	3. 45		30	9.158135	9.158207	9.158279				
	45	9.145126	9.145200	9.145275	0 58	4. 60		45	9.158352	9.158424	9.158496				
2	0	9.145349	9.145424	9.145499	45	1 = 15	17	0	9.158569	9.158641	9.158713				
	15	9.145573	9.145648	9.145722	30	2. 30		15	9.158786	9.158858	9.158930				
	30	9.145797	9.145871	9.145946	15	3. 45		30	9.159002	9.159075	9.159147				
	45	9.146020	9.146095	9.146169	0 57	4. 60		45	9.159219	9.159291	9.159363				
3	0	9.146244	9.146318	9.146392	45	1 = 15	18	0	9.159435	9.159508	9.159580				
	15	9.146467	9.146541	9.146616	30	2. 30		15	9.159652	9.159724	9.159796				
	30	9.146690	9.146764	9.146839	15	3. 45		30	9.159868	9.159940	9.160012				
	45	9.146913	9.146987	9.147062	0 56	4. 59		45	9.160084	9.160157	9.160229				
4	0	9.147136	9.147210	9.147284	45	1 = 15	19	0	9.160301	9.160373	9.160445				
	15	9.147359	9.147433	9.147507	30	2. 30		15	9.160517	9.160589	9.160661				
	30	9.147581	9.147655	9.147730	15	3. 45		30	9.160732	9.160804	9.160876				
	45	9.147804	9.147878	9.147952	0 55	4. 59		45	9.160948	9.161020	9.161092				
5	0	9.148026	9.148100	9.148174	45	1 = 15	20	0	9.161164	9.161236	9.161308				
	15	9.148249	9.148323	9.148397	30	2. 30		15	9.161379	9.161451	9.161523				
	30	9.148471	9.148545	9.148619	15	3. 44		30	9.161595	9.161667	9.161738				
	45	9.148693	9.148767	9.148841	0 54	4. 59		45	9.161810	9.161882	9.161954				
6	0	9.148915	9.148989	9.149063	45	1 = 15	21	0	9.162025	9.162097	9.162169				
	15	9.149137	9.149211	9.149285	30	2. 30		15	9.162241	9.162312	9.162384				
	30	9.149358	9.149432	9.149506	15	3. 44		30	9.162456	9.162527	9.162599				
	45	9.149580	9.149654	9.149728	0 53	4. 59		45	9.162671	9.162742	9.162814				
7	0	9.149802	9.149875	9.149949	45	1 = 15	22	0	9.162885	9.162957	9.163028				
	15	9.150023	9.150097	9.150170	30	2. 29		15	9.163100	9.163172	9.163243				
	30	9.150244	9.150318	9.150392	15	3. 44		30	9.163315	9.163386	9.163458				
	45	9.150465	9.150539	9.150613	0 52	4. 59		45	9.163529	9.163601	9.163672				
8	0	9.150686	9.150760	9.150834	45	1 = 15	23	0	9.163743	9.163815	9.163886				
	15	9.150907	9.150981	9.151055	30	2. 29		15	9.163958	9.164029	9.164100				
	30	9.151128	9.151202	9.151275	15	3. 44		30	9.164172	9.164243	9.164315				
	45	9.151340	9.151422	9.151496	0 51	4. 59		45	9.164386	9.164457	9.164529				
9	0	9.151569	9.151643	9.151716	45	1 = 15	24	0	9.164600	9.164671	9.164742				
	15	9.151790	9.151863	9.151937	30	2. 29		15	9.164814	9.164885	9.164956				
	30	9.152010	9.152084	9.152157	15	3. 44		30	9.165027	9.165099	9.165170				
	45	9.152231	9.152304	9.152377	0 50	4. 59		45	9.165241	9.165312	9.165383				
10	0	9.152451	9.152524	9.152597	45	1 = 15	25	0	9.165454	9.165526	9.165597				
	15	9.152671	9.152744	9.152817	30	2. 29		15	9.165668	9.165739	9.165810				
	30	9.152891	9.152964	9.153037	15	3. 44		30	9.165881	9.165952	9.166023				
	45	9.153110	9.153184	9.153257	0 49	4. 59		45	9.166094	9.166165	9.166236				
11	0	9.153330	9.153403	9.153476	45	1 = 15	26	0	9.166307	9.166378	9.166449				
	15	9.153550	9.153623	9.153696	30	2. 29		15	9.166520	9.166591	9.166662				
	30	9.153769	9.153842	9.153915	15	3. 44		30	9.166733	9.166804	9.166875				
	45	9.153988	9.154062	9.154135	0 48	4. 58		45	9.166946	9.167017	9.167088				
12	0	9.154208	9.154281	9.154354	45	1 = 15	27	0	9.167159	9.167229	9.167300				
	15	9.154427	9.154500	9.154573	30	2. 29		15	9.167371	9.167442	9.167513				
	30	9.154646	9.154719	9.154792	15	3. 44		30	9.167584	9.167654	9.167725				
	45	9.154865	9.154938	9.155011	0 47	4. 58		45	9.167796	9.167867	9.167937				
13	0	9.155083	9.155156	9.155229	45	1 = 15	28	0	9.168008	9.168079	9.168150				
	15	9.155302	9.155375	9.155448	30	2. 29		15	9.168220	9.168291	9.168362				
	30	9.155521	9.155593	9.155666	15	3. 44		30	9.168432	9.168503	9.168574				
	45	9.155739	9.155812	9.155885	0 46	4. 58		45	9.168644	9.168715	9.168785				
14	0	9.155957	9.156030	9.156103	45	1 = 15	29	0	9.168856	9.168927	9.168997				
	15	9.156176	9.156248	9.156321	30	2. 29		15	9.169068	9.169138	9.169209				
	30	9.156394	9.156466	9.156539	15	3. 44		30	9.169279	9.169350	9.169420				
	45	9.156612	9.156684	9.156757	0 45	4. 58		45	9.169491	9.169561	9.169632				
Minutes	Seconds	15'	10'	5'	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15'	10'	5'			
		Co-sine of 81 degrees, or Sine of 171 degrees.								Co-sine of 81 degrees, or Sine of 171 degrees.					

LOGARITHMIC SINES.

Sine of 8 degrees, or sine of 98 degrees.				Sine of 8 degrees, or Co-sine of 98 degrees.				Sine of 8 degrees, or Co-sine of 98 degrees.											
5"		10"		0"		5"		10"		0"		5"		10"					
02 9.169773	9.169843	45	1" = 14	45	0	9.182196	9.182264	9.182333	45	1" = 14	45	0	9.182196	9.182264	9.182333				
13 9.169984	9.170054	30	2. 28	15	15	9.182401	9.182470	9.182538	30	2. 27	30	15	9.182401	9.182470	9.182538				
25 9.170195	9.170265	15	3. 42	0	30	9.182606	9.182675	9.182743	15	3. 41	15	30	9.182606	9.182675	9.182743				
36 9.170406	9.170476	0	4. 56	0 29	45	9.182811	9.182879	9.182948	0	4. 55	0 14	45	9.182811	9.182879	9.182948				
47 9.170617	9.170687	45	1 = 14	46	0	9.183016	9.183084	9.183153	45	1 = 14	46	0	9.183016	9.183084	9.183153				
57 9.170828	9.170898	30	2. 28	15	15	9.183221	9.183289	9.183357	30	2. 27	30	15	9.183221	9.183289	9.183357				
68 9.171038	9.171109	15	3. 42	0	30	9.183425	9.183494	9.183562	15	3. 41	0	30	9.183425	9.183494	9.183562				
79 9.171249	9.171319	0	4. 56	0 28	45	9.183630	9.183698	9.183766	0	4. 55	0 13	45	9.183630	9.183698	9.183766				
89 9.171460	9.171530	45	1 = 14	47	0	9.183834	9.183903	9.183971	45	1 = 14	47	0	9.183834	9.183903	9.183971				
00 9.171670	9.171740	30	2. 28	15	15	9.184039	9.184107	9.184175	30	2. 27	30	15	9.184039	9.184107	9.184175				
10 9.171880	9.171950	15	3. 42	0	30	9.184243	9.184311	9.184379	15	3. 41	0	30	9.184243	9.184311	9.184379				
20 9.172090	9.172160	0	4. 56	0 27	45	9.184447	9.184515	9.184583	0	4. 54	0 12	45	9.184447	9.184515	9.184583				
31 9.172301	9.172371	45	1 = 14	48	0	9.184651	9.184719	9.184787	45	1 = 14	48	0	9.184651	9.184719	9.184787				
41 9.172511	9.172580	30	2. 28	15	15	9.184855	9.184923	9.184991	30	2. 27	30	15	9.184855	9.184923	9.184991				
50 9.172720	9.172790	15	3. 42	0	30	9.185059	9.185127	9.185195	15	3. 41	0	30	9.185059	9.185127	9.185195				
60 9.172930	9.173000	0	4. 56	0 26	45	9.185263	9.185331	9.185399	0	4. 54	0 11	45	9.185263	9.185331	9.185399				
70 9.173140	9.173210	45	1 = 14	49	0	9.185467	9.185534	9.185602	45	1 = 14	49	0	9.185467	9.185534	9.185602				
80 9.173349	9.173419	30	2. 28	15	15	9.185670	9.185738	9.185806	30	2. 27	30	15	9.185670	9.185738	9.185806				
90 9.173559	9.173629	15	3. 42	0	30	9.185874	9.185941	9.186009	15	3. 41	0	30	9.185874	9.185941	9.186009				
01 9.173768	9.173838	0	4. 56	0 25	45	9.186077	9.186145	9.186212	0	4. 54	0 10	45	9.186077	9.186145	9.186212				
11 9.173977	9.174047	45	1 = 14	50	0	9.186280	9.186348	9.186416	45	1 = 14	50	0	9.186280	9.186348	9.186416				
21 9.174187	9.174256	30	2. 28	15	15	9.186483	9.186551	9.186619	30	2. 27	30	15	9.186483	9.186551	9.186619				
31 9.174396	9.174465	15	3. 42	0	30	9.186687	9.186754	9.186822	15	3. 41	0	30	9.186687	9.186754	9.186822				
41 9.174605	9.174674	0	4. 56	0 24	45	9.186889	9.186957	9.187025	0	4. 54	0 9	45	9.186889	9.186957	9.187025				
51 9.174814	9.174883	45	1 = 14	51	0	9.187092	9.187160	9.187228	45	1 = 14	51	0	9.187092	9.187160	9.187228				
61 9.175022	9.175092	30	2. 28	15	15	9.187295	9.187363	9.187430	30	2. 27	30	15	9.187295	9.187363	9.187430				
71 9.175231	9.175300	15	3. 42	0	30	9.187498	9.187565	9.187633	15	3. 41	0	30	9.187498	9.187565	9.187633				
81 9.175439	9.175509	0	4. 56	0 23	45	9.187700	9.187768	9.187835	0	4. 54	0 8	45	9.187700	9.187768	9.187835				
91 9.175648	9.175717	45	1 = 14	52	0	9.187903	9.187970	9.188038	45	1 = 13	52	0	9.187903	9.187970	9.188038				
02 9.175856	9.175926	30	2. 28	15	15	9.188105	9.188173	9.188240	30	2. 27	30	15	9.188105	9.188173	9.188240				
12 9.176064	9.176134	15	3. 42	0	30	9.188308	9.188375	9.188443	15	3. 40	0	30	9.188308	9.188375	9.188443				
22 9.176273	9.176342	0	4. 56	0 22	45	9.188510	9.188577	9.188645	0	4. 54	0 7	45	9.188510	9.188577	9.188645				
32 9.176481	9.176550	45	1 = 14	53	0	9.188712	9.188780	9.188847	45	1 = 13	53	0	9.188712	9.188780	9.188847				
42 9.176689	9.176758	30	2. 28	15	15	9.188914	9.188981	9.189049	30	2. 27	30	15	9.188914	9.188981	9.189049				
52 9.176896	9.176966	15	3. 42	0	30	9.189116	9.189183	9.189251	15	3. 40	0	30	9.189116	9.189183	9.189251				
62 9.177104	9.177173	0	4. 55	0 21	45	9.189318	9.189385	9.189452	0	4. 54	0 6	45	9.189318	9.189385	9.189452				
72 9.177312	9.177381	45	1 = 14	54	0	9.189520	9.189587	9.189654	45	1 = 13	54	0	9.189520	9.189587	9.189654				
82 9.177519	9.177588	30	2. 28	15	15	9.189721	9.189788	9.189856	30	2. 27	30	15	9.189721	9.189788	9.189856				
92 9.177727	9.177796	15	3. 41	0	30	9.189923	9.189990	9.190057	15	3. 40	0	30	9.189923	9.189990	9.190057				
03 9.177934	9.178003	0	4. 55	0 20	45	9.190124	9.190191	9.190258	0	4. 54	0 5	45	9.190124	9.190191	9.190258				
13 9.178141	9.178210	45	1 = 14	55	0	9.190325	9.190393	9.190460	45	1 = 13	55	0	9.190325	9.190393	9.190460				
23 9.178348	9.178417	30	2. 28	15	15	9.190527	9.190594	9.190661	30	2. 27	30	15	9.190527	9.190594	9.190661				
33 9.178555	9.178624	15	3. 41	0	30	9.190728	9.190795	9.190862	15	3. 40	0	30	9.190728	9.190795	9.190862				
43 9.178762	9.178831	0	4. 55	0 19	45	9.190929	9.190996	9.191063	0	4. 54	0 4	45	9.190929	9.190996	9.191063				
53 9.178969	9.179038	45	1 = 14	56	0	9.191130	9.191197	9.191264	45	1 = 13	56	0	9.191130	9.191197	9.191264				
63 9.179176	9.179245	30	2. 28	15	15	9.191331	9.191398	9.191465	30	2. 27	30	15	9.191331	9.191398	9.191465				
73 9.179382	9.179451	15	3. 41	0	30	9.191532	9.191598	9.191665	15	3. 40	0	30	9.191532	9.191598	9.191665				
83 9.179589	9.179658	0	4. 55	0 18	45	9.191732	9.191799	9.191866	0	4. 54	0 3	45	9.191732	9.191799	9.191866				
93 9.179795	9.179864	45	1 = 14	57	0	9.191933	9.192000	9.192066	45	1 = 13	57	0	9.191933	9.192000	9.192066				
04 9.180002	9.180070	30	2. 28	15	15	9.192133	9.192200	9.192267	30	2. 27	30	15	9.192133	9.192200	9.192267				
14 9.180208	9.180277	15	3. 41	0	30	9.192334	9.192401	9.192467	15	3. 40	0	30	9.192334	9.192401	9.192467				
24 9.180414	9.180483	0	4. 55	0 17	45	9.192534	9.192601	9.192668	0	4. 53	0 2	45	9.192534	9.192601	9.192668				
34 9.180620	9.180689	45	1 = 14	58	0	9.192734	9.192801	9.192868	45	1 = 13	58	0	9.192734	9.192801	9.192868				
44 9.180826	9.180894	30	2. 27	15	15	9.192934	9.193001	9.193068	30	2. 27	30	15	9.192934	9.193001	9.193068				
54 9.181032	9.181100	15	3. 41	0	30	9.193134	9.193201	9.193268	15	3. 40	0	30	9.193134	9.193201	9.193268				
64 9.181237	9.181306	0	4. 55	0 16	45	9.193334	9.193401	9.193468	0	4. 53	0 1	45	9.193334	9.193401	9.193468				
74 9.181443	9.181511	45	1 = 14	59	0	9.193534	9.193601	9.193667	45	1 = 13	59	0	9.193534	9.193601	9.193667				
84 9.181648	9.181717	30	2. 27	15	15	9.193734	9.193800	9.193867	30	2. 27	30	15	9.193734	9.193800	9.193867				
94 9.181854	9.181922	15	3. 41	0	30	9.193933	9.194000	9.194067	15	3. 40	0	30	9.193933	9.194000	9.194067				
05 9.182059	9.182128	0	4. 55	0 15	45	9.194133	9.194200	9.194266	0	4. 53	0 0	45	9.194133	9.194200	9.194266				
10"				5"				15"				10"				5"			
Sine of 81 degrees, or of 171 degrees.				Sine of 81 degrees, or Sine of 171 degrees.				Sine of 81 degrees, or Sine of 171 degrees.				Sine of 81 degrees, or Sine of 171 degrees.				Sine of 81 degrees, or Sine of 171 degrees.			

LOGARITHMIC SINES.

Minutes	Seconds	Sine of 9 degrees, or Co-sine of 99 degrees.			Seconds	Minutes	Proport. parts.	Minutes	Seconds	Sine of 9 degrees, or Co-sine of 99 degrees.			Seconds	Minutes
		0'	5'	10'						0'	5'	10'		
0	0	9.194332	9.194399	9.194405	45	1	1 = 13	15	0	9.206131	9.206196	9.206200	45	1
	15	9.194532	9.194598	9.194605	30		2. 27		15	9.206325	9.206389	9.206454	30	
	30	9.194731	9.194798	9.194864	15		3. 40		30	9.206519	9.206583	9.206648	15	
	45	9.194930	9.194997	9.195063	0	59	4. 53		45	9.206712	9.206777	9.206841	0	44
1	0	9.195129	9.195196	9.195262	45	1	1 = 13	16	0	9.206906	9.206970	9.207035	45	1
	15	9.195328	9.195395	9.195461	30		2. 27		15	9.207099	9.207164	9.207228	30	
	30	9.195527	9.195594	9.195660	15		3. 40		30	9.207293	9.207357	9.207422	15	
	45	9.195726	9.195792	9.195859	0	58	4. 53		45	9.207486	9.207551	9.207615	0	43
2	0	9.195925	9.195991	9.196057	45	1	1 = 13	17	0	9.207680	9.207744	9.207808	45	1
	15	9.196123	9.196190	9.196256	30		2. 26		15	9.207873	9.207937	9.208001	30	
	30	9.196322	9.196388	9.196454	15		3. 40		30	9.208066	9.208130	9.208194	15	
	45	9.196520	9.196586	9.196653	0	57	4. 53		45	9.208259	9.208323	9.208387	0	42
3	0	9.196719	9.196785	9.196851	45	1	1 = 13	18	0	9.208452	9.208516	9.208580	45	1
	15	9.196917	9.196983	9.197049	30		2. 26		15	9.208644	9.208709	9.208773	30	
	30	9.197115	9.197181	9.197247	15		3. 40		30	9.208837	9.208901	9.208966	15	
	45	9.197313	9.197379	9.197445	0	56	4. 53		45	9.209030	9.209094	9.209158	0	41
4	0	9.197511	9.197577	9.197643	45	1	1 = 13	19	0	9.209222	9.209287	9.209351	45	1
	15	9.197709	9.197775	9.197841	30		2. 26		15	9.209415	9.209479	9.209543	30	
	30	9.197907	9.197973	9.198038	15		3. 40		30	9.209607	9.209671	9.209735	15	
	45	9.198104	9.198170	9.198236	0	55	4. 53		45	9.209800	9.209864	9.209928	0	40
5	0	9.198302	9.198368	9.198434	45	1	1 = 13	20	0	9.209992	9.210056	9.210120	45	1
	15	9.198499	9.198565	9.198631	30		2. 26		15	9.210184	9.210248	9.210312	30	
	30	9.198697	9.198763	9.198828	15		3. 39		30	9.210376	9.210440	9.210504	15	
	45	9.198894	9.198960	9.199026	0	54	4. 53		45	9.210568	9.210632	9.210696	0	39
6	0	9.199091	9.199157	9.199223	45	1	1 = 13	21	0	9.210760	9.210824	9.210888	45	1
	15	9.199289	9.199354	9.199420	30		2. 26		15	9.210952	9.211015	9.211079	30	
	30	9.199486	9.199551	9.199617	15		3. 39		30	9.211143	9.211207	9.211271	15	
	45	9.199683	9.199748	9.199814	0	53	4. 53		45	9.211335	9.211399	9.211462	0	38
7	0	9.199879	9.199945	9.200011	45	1	1 = 13	22	0	9.211526	9.211590	9.211654	45	1
	15	9.200076	9.200142	9.200207	30		2. 26		15	9.211718	9.211782	9.211845	30	
	30	9.200273	9.200338	9.200404	15		3. 39		30	9.211909	9.211973	9.212037	15	
	45	9.200469	9.200535	9.200600	0	52	4. 52		45	9.212100	9.212164	9.212228	0	37
8	0	9.200666	9.200731	9.200797	45	1	1 = 13	23	0	9.212291	9.212355	9.212419	45	1
	15	9.200862	9.200928	9.200993	30		2. 26		15	9.212483	9.212546	9.212610	30	
	30	9.201059	9.201124	9.201189	15		3. 39		30	9.212674	9.212737	9.212801	15	
	45	9.201255	9.201320	9.201386	0	51	4. 52		45	9.212864	9.212928	9.212992	0	36
9	0	9.201451	9.201516	9.201582	45	1	1 = 13	24	0	9.213055	9.213119	9.213182	45	1
	15	9.201647	9.201712	9.201778	30		2. 26		15	9.213246	9.213310	9.213373	30	
	30	9.201843	9.201908	9.201974	15		3. 39		30	9.213437	9.213500	9.213564	15	
	45	9.202039	9.202104	9.202169	0	50	4. 52		45	9.213627	9.213691	9.213754	0	35
10	0	9.202235	9.202300	9.202365	45	1	1 = 13	25	0	9.213818	9.213881	9.213945	45	1
	15	9.202430	9.202495	9.202561	30		2. 26		15	9.214008	9.214072	9.214135	30	
	30	9.202626	9.202691	9.202756	15		3. 39		30	9.214198	9.214262	9.214325	15	
	45	9.202821	9.202886	9.202952	0	49	4. 52		45	9.214380	9.214442	9.214505	0	34
11	0	9.203017	9.203082	9.203147	45	1	1 = 13	26	0	9.214579	9.214642	9.214705	45	1
	15	9.203212	9.203277	9.203342	30		2. 26		15	9.214769	9.214832	9.214895	30	
	30	9.203407	9.203472	9.203537	15		3. 39		30	9.214959	9.215022	9.215085	15	
	45	9.203602	9.203667	9.203732	0	48	4. 52		45	9.215149	9.215212	9.215275	0	33
12	0	9.203797	9.203862	9.203927	45	1	1 = 13	27	0	9.215338	9.215402	9.215465	45	1
	15	9.203992	9.204057	9.204122	30		2. 26		15	9.215528	9.215591	9.215655	30	
	30	9.204187	9.204252	9.204317	15		3. 39		30	9.215718	9.215781	9.215844	15	
	45	9.204382	9.204447	9.204512	0	47	4. 52		45	9.215907	9.215970	9.216034	0	32
13	0	9.204577	9.204642	9.204706	45	1	1 = 13	28	0	9.216097	9.216160	9.216223	45	1
	15	9.204771	9.204836	9.204901	30		2. 26		15	9.216286	9.216349	9.216412	30	
	30	9.204966	9.205031	9.205095	15		3. 39		30	9.216475	9.216538	9.216602	15	
	45	9.205160	9.205225	9.205290	0	46	4. 52		45	9.216665	9.216728	9.216791	0	31
14	0	9.205355	9.205419	9.205484	45	1	1 = 13	29	0	9.216854	9.216917	9.216980	45	1
	15	9.205549	9.205613	9.205678	30		2. 26		15	9.217043	9.217106	9.217169	30	
	30	9.205743	9.205808	9.205872	15		3. 39		30	9.217232	9.217295	9.217358	15	
	45	9.205937	9.206002	9.206066	0	45	4. 52		45	9.217421	9.217483	9.217546	0	30
Minutes	Seconds	15'	10'	5'	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15'	10'	5'	Seconds	Minutes
		Co-sine of 80 degrees, or Sine of 170 degrees.								Co-sine of 80 degrees, or Sine of 170 degrees.				

LOGARITHMIC SINES.

Sine of 9 degrees, or Co-sine of 99 degrees.				Seconds	Minutes	Proport. parts.	Sine of 9 degrees, or Co-sine of 99 degrees.				Seconds	Minutes	Proport. parts.
0'	5'	10'					0'	5'	10'				
9. 217600	9. 217629	9. 217735	45			1" = 13	9. 228784	9. 228845	9. 228906	45			1" = 12
9. 217798	9. 217861	9. 217924	30			2. 25	9. 228968	9. 229029	9. 229090	30			2. 24
9. 217987	9. 218049	9. 218112	15			3. 38	9. 229151	9. 229213	9. 229274	15			3. 37
9. 218175	9. 218238	9. 218301	0	29		4. 50	9. 229335	9. 229396	9. 229457	0	14		4. 49
9. 218364	9. 218426	9. 218489	45			1" = 13	9. 229519	9. 229580	9. 229641	45			1" = 12
9. 218552	9. 218615	9. 218677	30			2. 25	9. 229702	9. 229763	9. 229824	30			2. 24
9. 218740	9. 218803	9. 218866	15			3. 38	9. 229885	9. 229946	9. 230008	15			3. 37
9. 218928	9. 218991	9. 219054	0	28		4. 50	9. 230069	9. 230130	9. 230191	0	13		4. 49
9. 219116	9. 219179	9. 219242	45			1" = 13	9. 230252	9. 230313	9. 230374	45			1" = 12
9. 219304	9. 219367	9. 219430	30			2. 25	9. 230435	9. 230496	9. 230557	30			2. 24
9. 219492	9. 219555	9. 219618	15			3. 38	9. 230618	9. 230679	9. 230740	15			3. 37
9. 219680	9. 219743	9. 219805	0	27		4. 50	9. 230801	9. 230862	9. 230923	0	12		4. 49
9. 219868	9. 219931	9. 219993	45			1" = 13	9. 230984	9. 231045	9. 231106	45			1" = 12
9. 220056	9. 220118	9. 220181	30			2. 25	9. 231167	9. 231228	9. 231288	30			2. 24
9. 220243	9. 220306	9. 220368	15			3. 38	9. 231349	9. 231410	9. 231471	15			3. 37
9. 220431	9. 220493	9. 220556	0	26		4. 50	9. 231532	9. 231593	9. 231654	0	11		4. 49
9. 220618	9. 220681	9. 220743	45			1" = 12	9. 231715	9. 231775	9. 231836	45			1" = 12
9. 220806	9. 220868	9. 220930	30			2. 25	9. 231897	9. 231958	9. 232019	30			2. 24
9. 220993	9. 221055	9. 221118	15			3. 37	9. 232079	9. 232140	9. 232201	15			3. 36
9. 221180	9. 221242	9. 221305	0	25		4. 50	9. 232262	9. 232323	9. 232383	0	10		4. 49
9. 221367	9. 221429	9. 221492	45			1" = 12	9. 232444	9. 232505	9. 232566	45			1" = 12
9. 221554	9. 221616	9. 221679	30			2. 25	9. 232626	9. 232687	9. 232748	30			2. 24
9. 221741	9. 221803	9. 221866	15			3. 37	9. 232808	9. 232869	9. 232930	15			3. 36
9. 221928	9. 221990	9. 222052	0	24		4. 50	9. 232990	9. 233051	9. 233112	0	9		4. 49
9. 222115	9. 222177	9. 222239	45			1" = 12	9. 233172	9. 233233	9. 233294	45			1" = 12
9. 222301	9. 222364	9. 222426	30			2. 25	9. 233354	9. 233415	9. 233475	30			2. 24
9. 222488	9. 222550	9. 222612	15			3. 37	9. 233536	9. 233597	9. 233657	15			3. 36
9. 222675	9. 222737	9. 222799	0	23		4. 50	9. 233718	9. 233778	9. 233839	0	8		4. 48
9. 222861	9. 222923	9. 222985	45			1" = 12	9. 233899	9. 233960	9. 234020	45			1" = 12
9. 223047	9. 223109	9. 223172	30			2. 25	9. 234081	9. 234141	9. 234202	30			2. 24
9. 223234	9. 223296	9. 223358	15			3. 37	9. 234262	9. 234323	9. 234383	15			3. 36
9. 223420	9. 223482	9. 223544	0	22		4. 50	9. 234444	9. 234504	9. 234565	0	7		4. 48
9. 223606	9. 223668	9. 223730	45			1" = 12	9. 234625	9. 234685	9. 234746	45			1" = 12
9. 223792	9. 223854	9. 223916	30			2. 25	9. 234806	9. 234867	9. 234927	30			2. 24
9. 223978	9. 224040	9. 224102	15			3. 37	9. 234987	9. 235048	9. 235108	15			3. 36
9. 224164	9. 224226	9. 224288	0	21		4. 50	9. 235168	9. 235229	9. 235289	0	6		4. 48
9. 224350	9. 224411	9. 224473	45			1" = 12	9. 235349	9. 235410	9. 235470	45			1" = 12
9. 224535	9. 224597	9. 224659	30			2. 25	9. 235530	9. 235591	9. 235651	30			2. 24
9. 224721	9. 224783	9. 224845	15			3. 37	9. 235711	9. 235771	9. 235832	15			3. 36
9. 224906	9. 224968	9. 225030	0	20		4. 49	9. 235892	9. 235952	9. 236012	0	5		4. 48
9. 225092	9. 225154	9. 225215	45			1" = 12	9. 236073	9. 236133	9. 236193	45			1" = 12
9. 225277	9. 225339	9. 225401	30			2. 25	9. 236253	9. 236313	9. 236374	30			2. 24
9. 225463	9. 225524	9. 225586	15			3. 37	9. 236434	9. 236494	9. 236554	15			3. 36
9. 225648	9. 225709	9. 225771	0	19		4. 49	9. 236614	9. 236674	9. 236735	0	4		4. 48
9. 225833	9. 225895	9. 225956	45			1" = 12	9. 236795	9. 236855	9. 236915	45			1" = 12
9. 226018	9. 226080	9. 226141	30			2. 25	9. 236975	9. 237035	9. 237095	30			2. 24
9. 226203	9. 226265	9. 226326	15			3. 37	9. 237155	9. 237215	9. 237275	15			3. 36
9. 226388	9. 226449	9. 226511	0	18		4. 49	9. 237335	9. 237395	9. 237455	0	3		4. 48
9. 226573	9. 226634	9. 226696	45			1" = 12	9. 237515	9. 237575	9. 237635	45			1" = 12
9. 226757	9. 226819	9. 226880	30			2. 25	9. 237695	9. 237755	9. 237815	30			2. 24
9. 226942	9. 227003	9. 227065	15			3. 37	9. 237875	9. 237935	9. 237995	15			3. 36
9. 227127	9. 227188	9. 227250	0	17		4. 49	9. 238055	9. 238115	9. 238175	0	2		4. 48
9. 227311	9. 227372	9. 227434	45			1" = 12	9. 238235	9. 238295	9. 238355	45			1" = 12
9. 227495	9. 227557	9. 227618	30			2. 25	9. 238415	9. 238474	9. 238534	30			2. 24
9. 227680	9. 227741	9. 227803	15			3. 37	9. 238594	9. 238654	9. 238714	15			3. 36
9. 227864	9. 227925	9. 227987	0	16		4. 49	9. 238774	9. 238834	9. 238893	0	1		4. 48
9. 228048	9. 228110	9. 228171	45			1" = 12	9. 238953	9. 239013	9. 239073	45			1" = 12
9. 228232	9. 228294	9. 228355	30			2. 25	9. 239133	9. 239192	9. 239252	30			2. 24
9. 228416	9. 228478	9. 228539	15			3. 37	9. 239312	9. 239372	9. 239431	15			3. 36
9. 228600	9. 228661	9. 228723	0	15		4. 49	9. 239491	9. 239551	9. 239611	0	0		4. 48
15"	10"	5"		Seconds	Minutes	Proport. parts.	15"	10"	5"		Seconds	Minutes	Proport. parts.
Co-sine of 80 degrees, or Sine of 170 degrees.				Seconds	Minutes	Proport. parts.	Co-sine of 80 degrees, or Sine of 170 degrees.				Seconds	Minutes	Proport. parts.

LOGARITHMIC SINES.

Minutes	Sine of 10 degrees, or Co-sine of 100 degrees.												Minutes	Propor. parts.
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
0	9.239670	239730	239790	239849	239909	239969	240028	240088	240148	240207	240267	240327	59	1"=1
1	9.240386	240446	240505	240565	240624	240684	240744	240803	240863	240922	240982	241041	58	2. 1
2	9.241101	241160	241220	241279	241339	241398	241458	241517	241577	241636	241695	241755	57	3. 3
3	9.241814	241874	241933	241992	242052	242111	242170	242230	242289	242348	242408	242467	56	4. 4
4	9.242526	242586	242645	242704	242764	242823	242882	242941	243001	243060	243119	243178	55	1=1
5	9.243237	243297	243356	243415	243474	243533	243592	243652	243711	243770	243829	243888	54	2. 2
6	9.243947	244006	244065	244125	244184	244243	244302	244361	244420	244479	244538	244597	53	3. 3
7	9.244656	244715	244774	244833	244892	244951	245010	245069	245128	245187	245245	245304	52	4. 4
8	9.245363	245422	245481	245540	245599	245658	245717	245775	245834	245893	245952	246011	51	1=1
9	9.246070	246128	246187	246246	246305	246363	246422	246481	246540	246598	246657	246716	50	2. 2
10	9.246778	246837	246895	246954	247013	247071	247130	247189	247247	247306	247365	247424	49	3. 3
11	9.247485	247544	247603	247662	247721	247779	247838	247897	247956	248015	248074	248133	48	4. 4
12	9.248191	248250	248309	248368	248427	248486	248545	248604	248663	248722	248781	248840	47	1=1
13	9.248898	248957	249016	249075	249134	249193	249252	249311	249370	249429	249488	249547	46	2. 2
14	9.249604	249663	249722	249781	249840	249899	249958	250017	250076	250135	250194	250253	45	3. 3
15	9.250311	250370	250429	250488	250547	250606	250665	250724	250783	250842	250901	250960	44	4. 4
16	9.251018	251077	251136	251195	251254	251313	251372	251431	251490	251549	251608	251667	43	1=1
17	9.251725	251784	251843	251902	251961	252020	252079	252138	252197	252256	252315	252374	42	2. 2
18	9.252432	252491	252550	252609	252668	252727	252786	252845	252904	252963	253022	253081	41	3. 3
19	9.253139	253198	253257	253316	253375	253434	253493	253552	253611	253670	253729	253788	40	4. 4
20	9.253846	253905	253964	254023	254082	254141	254200	254259	254318	254377	254436	254495	39	1=1
21	9.254553	254612	254671	254730	254789	254848	254907	254966	255025	255084	255143	255202	38	2. 2
22	9.255260	255319	255378	255437	255496	255555	255614	255673	255732	255791	255850	255909	37	3. 3
23	9.255967	256026	256085	256144	256203	256262	256321	256380	256439	256498	256557	256616	36	4. 4
24	9.256674	256733	256792	256851	256910	256969	257028	257087	257146	257205	257264	257323	35	1=1
25	9.257381	257440	257499	257558	257617	257676	257735	257794	257853	257912	257971	258030	34	2. 2
26	9.258088	258147	258206	258265	258324	258383	258442	258501	258560	258619	258678	258737	33	3. 3
27	9.258795	258854	258913	258972	259031	259090	259149	259208	259267	259326	259385	259444	32	4. 4
28	9.259502	259561	259620	259679	259738	259797	259856	259915	259974	260033	260092	260151	31	1=1
29	9.259999	260058	260117	260176	260235	260294	260353	260412	260471	260530	260589	260648	30	2. 2
30	9.260696	260755	260814	260873	260932	260991	261050	261109	261168	261227	261286	261345	29	3. 3
31	9.261403	261462	261521	261580	261639	261698	261757	261816	261875	261934	261993	262052	28	4. 4
32	9.262110	262169	262228	262287	262346	262405	262464	262523	262582	262641	262700	262759	27	1=1
33	9.262817	262876	262935	262994	263053	263112	263171	263230	263289	263348	263407	263466	26	2. 2
34	9.263524	263583	263642	263701	263760	263819	263878	263937	263996	264055	264114	264173	25	3. 3
35	9.264231	264290	264349	264408	264467	264526	264585	264644	264703	264762	264821	264880	24	4. 4
36	9.264938	264997	265056	265115	265174	265233	265292	265351	265410	265469	265528	265587	23	1=1
37	9.265645	265704	265763	265822	265881	265940	265999	266058	266117	266176	266235	266294	22	2. 2
38	9.266352	266411	266470	266529	266588	266647	266706	266765	266824	266883	266942	266999	21	3. 3
39	9.267059	267118	267177	267236	267295	267354	267413	267472	267531	267590	267649	267708	20	4. 4
40	9.267766	267825	267884	267943	268002	268061	268120	268179	268238	268297	268356	268415	19	1=1
41	9.268473	268532	268591	268650	268709	268768	268827	268886	268945	269004	269063	269122	18	2. 2
42	9.269180	269239	269298	269357	269416	269475	269534	269593	269652	269711	269770	269829	17	3. 3
43	9.269887	269946	270005	270064	270123	270182	270241	270300	270359	270418	270477	270536	16	4. 4
44	9.270594	270653	270712	270771	270830	270889	270948	271007	271066	271125	271184	271243	15	1=1
45	9.271301	271360	271419	271478	271537	271596	271655	271714	271773	271832	271891	271950	14	2. 2
46	9.272008	272067	272126	272185	272244	272303	272362	272421	272480	272539	272598	272657	13	3. 3
47	9.272715	272774	272833	272892	272951	273010	273069	273128	273187	273246	273305	273364	12	4. 4
48	9.273422	273481	273540	273599	273658	273717	273776	273835	273894	273953	274012	274071	11	1=1
49	9.274129	274188	274247	274306	274365	274424	274483	274542	274601	274660	274719	274778	10	2. 2
50	9.274836	274895	274954	275013	275072	275131	275190	275249	275308	275367	275426	275485	9	3. 3
51	9.275543	275602	275661	275720	275779	275838	275897	275956	276015	276074	276133	276192	8	4. 4
52	9.276250	276309	276368	276427	276486	276545	276604	276663	276722	276781	276840	276899	7	1=1
53	9.276957	277016	277075	277134	277193	277252	277311	277370	277429	277488	277547	277606	6	2. 2
54	9.277664	277723	277782	277841	277900	277959	278018	278077	278136	278195	278254	278313	5	3. 3
55	9.278371	278430	278489	278548	278607	278666	278725	278784	278843	278902	278961	279020	4	4. 4
56	9.279078	279137	279196	279255	279314	279373	279432	279491	279550	279609	279668	279727	3	1=1
57	9.279785	279844	279903	279962	280021	280080	280139	280198	280257	280316	280375	280434	2	2. 2
58	9.280492	280551	280610	280669	280728	280787	280846	280905	280964	281023	281082	281141	1	3. 3
59	9.281199	281258	281317	281376	281435	281494	281553	281612	281671	281730	281789	281848	0	4. 4
Minutes	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Propor. parts.
Co-sine of 79 degrees, or Sine of 169 degrees.														

LOGARITHMIC SINES.

Sine of 11 degrees, or Cosine of 101 degrees.												Minutes	Proport. parts.
°	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
2590	280653	280707	280761	280815	280870	280924	280978	281032	281086	281140	281194	59	1 = 11
248	281302	281356	281411	281465	281519	281573	281627	281681	281735	281789	281843	58	2. 22
1897	281951	282005	282059	282113	282167	282221	282274	282328	282382	282436	282490	57	3. 32
1544	282598	282652	282706	282760	282814	282867	282921	282975	283029	283083	283137	56	4. 43
1191	283244	283298	283352	283406	283460	283513	283567	283621	283675	283728	283782	55	1 = 11
836	283890	283943	283997	284051	284105	284158	284212	284266	284319	284373	284427	54	2. 21
480	284534	284588	284641	284695	284749	284802	284856	284909	284963	285017	285070	53	3. 32
124	285177	285231	285284	285338	285392	285445	285499	285552	285606	285659	285713	52	4. 43
766	285820	285873	285927	285980	286034	286087	286140	286194	286247	286301	286354	51	1 = 11
408	286461	286514	286568	286621	286675	286728	286781	286835	286888	286941	286995	50	2. 21
048	287101	287155	287208	287261	287315	287368	287421	287475	287528	287581	287634	49	3. 32
688	287741	287794	287847	287901	287954	288007	288060	288113	288167	288220	288273	48	4. 43
326	288379	288432	288486	288539	288592	288645	288698	288751	288804	288857	288911	47	1 = 11
064	289017	289070	289123	289176	289229	289282	289335	289388	289441	289494	289547	46	2. 21
1600	289653	289706	289759	289812	289865	289918	289971	290024	290077	290130	290183	45	3. 32
1236	290289	290342	290395	290447	290500	290553	290606	290659	290712	290765	290818	44	4. 42
870	290923	290976	291029	291082	291135	291187	291240	291293	291346	291399	291451	43	1 = 11
504	291557	291610	291662	291715	291768	291821	291873	291926	291979	292031	292084	42	2. 21
137	292189	292242	292295	292347	292400	292453	292505	292558	292611	292663	292716	41	3. 32
1769	292821	292874	292926	292979	293031	293084	293137	293189	293242	293294	293347	40	4. 42
1399	293452	293504	293557	293609	293662	293714	293767	293819	293872	293924	293977	39	1 = 10
1029	294082	294134	294186	294239	294291	294344	294396	294449	294501	294553	294606	38	2. 21
1658	294710	294763	294815	294867	294920	294972	295024	295077	295129	295181	295234	37	3. 31
1286	295338	295391	295443	295495	295547	295600	295652	295704	295756	295808	295861	36	4. 41
913	295965	296017	296070	296122	296174	296226	296278	296330	296383	296435	296487	35	1 = 10
539	296591	296643	296695	296747	296800	296852	296904	296956	297008	297060	297112	34	2. 21
1164	297216	297268	297320	297372	297424	297476	297528	297580	297632	297684	297736	33	3. 31
788	297840	297892	297944	297996	298048	298100	298152	298204	298256	298308	298360	32	4. 41
5412	298464	298515	298567	298619	298671	298723	298775	298827	298878	298930	298982	31	1 = 10
1034	299086	299138	299189	299241	299293	299345	299397	299448	299500	299552	299604	30	2. 21
7655	299707	299759	299811	299862	299914	299966	300017	300069	300121	300172	300224	29	3. 31
2276	300327	300379	300431	300482	300534	300586	300637	300689	300741	300792	300844	28	4. 41
2895	300947	300999	301050	301102	301153	301205	301256	301308	301359	301411	301463	27	1 = 10
1514	301566	301617	301669	301720	301772	301823	301874	301926	301977	302029	302080	26	2. 21
1132	302183	302235	302286	302337	302389	302440	302492	302543	302594	302646	302697	25	3. 31
1749	302800	302851	302903	302954	303005	303057	303108	303159	303211	303262	303313	24	4. 41
1364	303416	303467	303518	303569	303621	303672	303723	303775	303826	303877	303928	23	1 = 10
9779	304031	304082	304133	304184	304235	304287	304338	304389	304440	304491	304542	22	2. 20
1593	304645	304696	304747	304798	304849	304900	304951	305002	305053	305104	305155	21	3. 31
1207	305258	305309	305360	305411	305462	305513	305564	305615	305666	305717	305768	20	4. 41
819	305870	305921	305972	306023	306074	306125	306176	306227	306278	306328	306379	19	1 = 10
5430	306481	306532	306583	306634	306685	306736	306787	306837	306888	306939	306990	18	2. 20
7041	307092	307142	307193	307244	307295	307346	307396	307447	307498	307549	307600	17	3. 31
7650	307701	307752	307803	307853	307904	307955	308006	308056	308107	308158	308208	16	4. 41
3259	308310	308360	308411	308462	308512	308563	308614	308664	308715	308766	308816	15	1 = 10
3867	308968	309019	309069	309120	309170	309221	309272	309322	309373	309423		14	2. 20
2474	309524	309575	309625	309676	309726	309777	309827	309878	309928	309979	310029	13	3. 30
2080	310130	310181	310231	310282	310332	310383	310433	310483	310534	310584	310635	12	4. 40
2685	310735	310786	310836	310886	310937	310987	311038	311088	311138	311189	311239	11	1 = 10
1289	311340	311390	311440	311490	311541	311591	311641	311692	311742	311792	311842	10	2. 20
1893	311943	311993	312043	312094	312144	312194	312244	312294	312345	312395	312445	9	3. 30
2495	312545	312596	312646	312696	312746	312796	312846	312896	312946	312997	313047	8	4. 40
3097	313147	313197	313247	313297	313347	313397	313447	313497	313547	313598	313648	7	1 = 10
3698	313748	313798	313848	313898	313948	313998	314048	314098	314148	314198	314248	6	2. 20
4298	314347	314397	314447	314497	314547	314597	314647	314697	314747	314797	314847	5	3. 30
4897	314946	314996	315046	315096	315146	315196	315246	315295	315345	315395	315445	4	4. 40
5495	315545	315594	315644	315694	315744	315794	315843	315893	315943	315993	316042	3	1 = 10
6092	316142	316192	316241	316291	316341	316390	316440	316490	316540	316590	316639	2	2. 20
6689	316738	316788	316838	316887	316937	316986	317036	317086	317135	317185	317235	1	3. 30
7284	317334	317383	317433	317483	317532	317582	317631	317681	317730	317780	317829	0	4. 40
0"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.
Cosine of 78 degrees, or Sine of 168 degrees.												Minutes	Proport. parts.

LOGARITHMIC SINES.

Minutes	Sine of 12 degrees, or Co-sine of 102 degrees.												Minutes	Proport.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	9.317879	317928	317978	318028	318077	318127	318176	318226	318275	318324	318374	318423	59	1
1	9.318473	318522	318572	318621	318671	318720	318770	318819	318868	318918	318967	319017	58	2
2	9.319066	319115	319165	319214	319263	319313	319362	319412	319461	319510	319560	319609	57	3
3	9.319658	319707	319757	319806	319855	319905	319954	320003	320053	320102	320151	320200	56	4
4	9.320250	320299	320348	320397	320446	320496	320545	320594	320643	320693	320742	320791	55	1
5	9.320840	320889	320938	320988	321037	321086	321135	321184	321233	321282	321332	321381	54	2
6	9.321430	321479	321528	321577	321626	321675	321724	321773	321822	321872	321921	321970	53	3
7	9.322019	322068	322117	322166	322215	322264	322313	322362	322411	322460	322509	322558	52	4
8	9.322607	322656	322705	322754	322803	322851	322900	322949	322998	323047	323096	323145	51	1
9	9.323194	323243	323292	323341	323389	323438	323487	323536	323585	323634	323683	323731	50	2
10	9.323780	323829	323878	323927	323976	324024	324073	324122	324171	324220	324268	324317	49	3
11	9.324366	324415	324463	324512	324561	324610	324658	324707	324756	324804	324853	324902	48	4
12	9.324951	324999	325048	325097	325145	325194	325243	325291	325340	325389	325437	325486	47	1
13	9.325534	325583	325632	325680	325729	325777	325826	325875	325923	325972	326020	326069	46	2
14	9.326117	326166	326215	326263	326312	326360	326409	326457	326506	326554	326603	326651	45	3
15	9.326700	326748	326797	326845	326894	326942	326991	327039	327087	327136	327184	327233	44	4
16	9.327281	327330	327378	327426	327475	327523	327572	327620	327668	327717	327765	327813	43	1
17	9.327862	327910	327958	328007	328055	328103	328152	328200	328248	328297	328345	328393	42	2
18	9.328442	328490	328538	328586	328635	328683	328731	328779	328828	328876	328924	328972	41	3
19	9.329021	329069	329117	329165	329213	329262	329310	329358	329406	329454	329502	329551	40	4
20	9.329599	329647	329695	329743	329791	329839	329888	329936	329984	330032	330080	330128	39	1
21	9.330176	330224	330272	330320	330368	330417	330465	330513	330561	330609	330657	330705	38	2
22	9.330753	330801	330849	330897	330945	330993	331041	331089	331137	331185	331233	331281	37	3
23	9.331329	331377	331424	331472	331520	331568	331616	331664	331712	331760	331808	331856	36	4
24	9.331904	331951	331999	332047	332095	332143	332191	332239	332286	332334	332382	332430	35	1
25	9.332478	332526	332573	332621	332669	332717	332765	332812	332860	332908	332956	333004	34	2
26	9.333051	333099	333147	333194	333242	333290	333338	333385	333433	333481	333528	333576	33	3
27	9.333624	333671	333719	333767	333814	333862	333910	333957	334005	334053	334100	334148	32	4
28	9.334196	334243	334291	334338	334386	334434	334481	334529	334576	334624	334671	334719	31	1
29	9.334767	334814	334862	334909	334957	335004	335052	335099	335147	335194	335242	335289	30	2
30	9.335337	335384	335432	335479	335527	335574	335622	335669	335717	335764	335811	335859	29	3
31	9.335906	335954	336001	336048	336096	336143	336191	336238	336285	336333	336380	336428	28	4
32	9.336475	336522	336570	336617	336664	336712	336759	336806	336854	336901	336948	336996	27	1
33	9.337043	337090	337137	337185	337232	337279	337326	337374	337421	337468	337515	337563	26	2
34	9.337610	337657	337704	337752	337799	337846	337893	337940	337988	338035	338082	338129	25	3
35	9.338176	338223	338271	338318	338365	338412	338459	338506	338553	338600	338648	338695	24	4
36	9.338742	338789	338836	338883	338930	338977	339024	339071	339118	339165	339213	339260	23	1
37	9.339307	339354	339401	339448	339495	339542	339589	339636	339683	339730	339777	339824	22	2
38	9.339871	339918	339965	340012	340058	340105	340152	340199	340246	340293	340340	340387	21	3
39	9.340434	340481	340528	340575	340621	340668	340715	340762	340809	340856	340903	340950	20	4
40	9.340996	341043	341090	341137	341184	341230	341277	341324	341371	341418	341464	341511	19	1
41	9.341558	341605	341652	341698	341745	341792	341839	341885	341932	341979	342026	342072	18	2
42	9.342119	342166	342212	342259	342306	342353	342399	342446	342493	342539	342586	342633	17	3
43	9.342679	342726	342773	342819	342866	342912	342959	343006	343052	343099	343145	343192	16	4
44	9.343239	343285	343332	343378	343425	343472	343518	343565	343611	343658	343704	343751	15	1
45	9.343797	343844	343890	343937	343983	344030	344076	344123	344169	344216	344262	344309	14	2
46	9.344355	344402	344448	344495	344541	344588	344634	344680	344727	344773	344820	344866	13	3
47	9.344912	344959	345005	345052	345098	345144	345191	345237	345283	345330	345376	345423	12	4
48	9.345469	345515	345562	345608	345654	345700	345747	345793	345839	345886	345932	345978	11	1
49	9.346025	346071	346117	346163	346210	346256	346302	346348	346395	346441	346487	346533	10	2
50	9.346579	346626	346672	346718	346764	346810	346857	346903	346949	346995	347041	347087	9	3
51	9.347134	347180	347226	347272	347318	347364	347410	347457	347503	347549	347595	347641	8	4
52	9.347687	347733	347779	347825	347871	347917	347964	348010	348056	348102	348148	348194	7	1
53	9.348240	348286	348332	348378	348424	348470	348516	348562	348608	348654	348700	348746	6	2
54	9.348792	348838	348884	348930	348976	349022	349067	349113	349159	349205	349251	349297	5	3
55	9.349343	349389	349435	349481	349527	349572	349618	349664	349710	349756	349802	349848	4	4
56	9.349893	349939	349985	350031	350077	350123	350168	350214	350260	350306	350352	350397	3	1
57	9.350443	350489	350535	350581	350626	350672	350718	350764	350809	350855	350901	350947	2	2
58	9.350992	351038	351084	351129	351175	351221	351266	351312	351358	351404	351449	351495	1	3
59	9.351541	351586	351632	351677	351723	351769	351814	351860	351906	351951	351997	352042	0	4
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport.
Co-sine of 77 degrees, or Sine of 167 degrees.														

LOGARITHMIC SINES.

Sine of 13 degrees, or Co-sine of 103 degrees.											Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
088	352134	352179	352225	352270	352316	352362	352407	352453	352498	352544	59	1" = 9
635	352680	352726	352772	352817	352863	352908	352954	352999	353045	353090	58	2. 18
181	353227	353272	353317	353363	353408	353454	353499	353545	353590	353636	57	3. 27
726	353772	353817	353863	353908	353953	353999	354044	354090	354135	354180	56	4. 36
271	354316	354362	354407	354453	354498	354543	354588	354634	354679	354724	55	1" = 9
815	354860	354906	354951	354996	355041	355087	355132	355177	355223	355268	54	2. 18
358	355404	355449	355494	355539	355584	355630	355675	355720	355765	355810	53	3. 27
901	355946	355991	356036	356081	356127	356172	356217	356262	356307	356352	52	4. 36
443	356488	356533	356578	356623	356668	356713	356758	356803	356848	356894	51	1" = 9
984	357029	357074	357119	357164	357209	357254	357299	357344	357389	357434	50	2. 18
524	357569	357614	357659	357704	357749	357794	357839	357884	357929	357974	49	3. 27
064	358109	358154	358199	358243	358288	358333	358378	358423	358468	358513	48	4. 36
603	358648	358693	358737	358782	358827	358872	358917	358962	359006	359051	47	1" = 9
141	359186	359231	359275	359320	359365	359410	359455	359499	359544	359589	46	2. 18
779	359723	359768	359813	359858	359902	359947	359992	360037	360081	360126	45	3. 27
215	360260	360305	360350	360394	360439	360484	360528	360573	360618	360662	44	4. 36
752	360796	360841	360885	360930	360975	361019	361064	361109	361153	361198	43	1" = 9
187	361332	361376	361421	361465	361510	361554	361599	361644	361688	361733	42	2. 18
322	361866	361911	361955	362000	362044	362089	362133	362178	362222	362267	41	3. 27
856	362400	362445	362489	362534	362578	362623	362667	362712	362756	362800	40	4. 36
389	362934	362978	363022	363067	363111	363156	363200	363244	363289	363333	39	1" = 9
122	363466	363511	363555	363599	363644	363688	363732	363777	363821	363865	38	2. 18
754	363998	364043	364087	364131	364175	364220	364264	364308	364352	364397	37	3. 27
285	364529	364574	364618	364662	364706	364751	364795	364839	364883	364927	36	4. 35
016	365060	365104	365148	365193	365237	365281	365325	365369	365413	365458	35	1" = 9
546	365590	365634	365678	365722	365766	365811	365855	365899	365943	365987	34	2. 18
775	366119	366163	366207	366251	366295	366339	366383	366428	366472	366516	33	3. 26
304	366648	366692	366736	366780	366824	366868	366912	366956	367000	367044	32	4. 35
132	367175	367219	367263	367307	367351	367395	367439	367483	367527	367571	31	1" = 9
259	367703	367747	367790	367834	367878	367922	367966	368010	368054	368097	30	2. 18
185	368229	368273	368317	368361	368404	368448	368492	368536	368580	368624	29	3. 26
711	368755	368799	368843	368886	368930	368974	369018	369061	369105	369149	28	4. 35
236	369280	369324	369368	369411	369455	369499	369542	369586	369630	369674	27	1" = 9
761	369805	369848	369892	369936	369979	370023	370067	370110	370154	370197	26	2. 17
285	370328	370372	370416	370459	370503	370546	370590	370634	370677	370721	25	3. 26
808	370852	370895	370939	370982	371026	371069	371113	371156	371200	371243	24	4. 35
330	371374	371417	371461	371504	371548	371591	371635	371678	371722	371765	23	1" = 9
852	371896	371939	371983	372026	372070	372113	372156	372200	372243	372287	22	2. 17
374	372417	372460	372504	372547	372590	372634	372677	372721	372764	372807	21	3. 26
894	372937	372981	373024	373067	373111	373154	373197	373241	373284	373327	20	4. 35
414	373457	373501	373544	373587	373630	373674	373717	373760	373803	373847	19	1" = 9
933	373976	374020	374063	374106	374149	374193	374236	374279	374322	374365	18	2. 17
452	374495	374538	374581	374624	374668	374711	374754	374797	374840	374883	17	3. 26
970	375013	375056	375099	375142	375185	375228	375271	375315	375358	375401	16	4. 35
487	375530	375573	375616	375659	375702	375745	375788	375831	375874	375917	15	1" = 9
003	376046	376089	376133	376176	376219	376262	376305	376347	376390	376433	14	2. 17
519	376562	376605	376648	376691	376734	376777	376820	376863	376906	376949	13	3. 26
035	377078	377121	377163	377206	377249	377292	377335	377378	377421	377464	12	4. 34
549	377592	377635	377678	377721	377764	377806	377849	377892	377935	377978	11	1" = 9
063	378106	378149	378192	378235	378277	378320	378363	378406	378448	378491	10	2. 17
577	378619	378662	378705	378748	378790	378833	378876	378919	378961	379004	9	3. 26
089	379132	379175	379218	379260	379303	379346	379388	379431	379474	379516	8	4. 34
602	379644	379687	379729	379772	379815	379857	379900	379943	379985	380028	7	1" = 9
113	380156	380198	380241	380283	380326	380368	380411	380454	380496	380539	6	2. 17
624	380666	380709	380751	380794	380836	380879	380921	380964	381006	381049	5	3. 26
134	381176	381219	381261	381304	381346	381389	381431	381474	381516	381559	4	4. 34
643	381686	381728	381771	381813	381856	381898	381940	381983	382025	382068	3	1" = 8
152	382195	382237	382279	382322	382364	382407	382449	382491	382534	382576	2	2. 17
661	382703	382745	382788	382830	382872	382914	382957	382999	383041	383084	1	3. 25
168	383211	383253	383295	383337	383380	383422	383464	383506	383549	383591	0	4. 34
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.

Co-sine of 76 degrees, or Sine of 166 degrees.

TABLE XXXVI.

LOGARITHMIC SINES.

Minutes	Sine of 14 degrees, or Co-sine of 104 degrees.												Minutes	Propor. parts
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
0	9.383675	383717	383760	383802	383844	383886	383928	383971	384013	384055	384097	384139	59	1° =
1	9.384182	384224	384266	384308	384350	384392	384435	384477	384519	384561	384603	384645	58	2. 11
2	9.384687	384729	384772	384814	384856	384898	384940	384982	385024	385066	385108	385150	57	3. 4
3	9.385192	385235	385277	385319	385361	385403	385445	385487	385529	385571	385613	385655	56	4. 2
4	9.385697	385739	385781	385823	385865	385907	385949	385991	386033	386075	386117	386159	55	1 =
5	9.386201	386243	386285	386327	386369	386411	386453	386494	386536	386578	386620	386662	54	2. 11
6	9.386704	386746	386788	386830	386872	386914	386955	386997	387039	387081	387123	387165	53	3. 4
7	9.387207	387249	387290	387332	387374	387416	387458	387500	387541	387583	387625	387667	52	4. 2
8	9.387709	387751	387792	387834	387876	387918	387960	388001	388043	388085	388127	388168	51	1 =
9	9.388210	388252	388294	388335	388377	388419	388461	388502	388544	388586	388628	388669	50	2. 11
10	9.388711	388753	388794	388836	388878	388919	388961	389003	389044	389086	389128	389169	49	3. 4
11	9.389211	389253	389294	389336	389378	389419	389461	389503	389544	389586	389627	389669	48	4. 2
12	9.389711	389752	389794	389835	389877	389919	389960	390002	390043	390085	390127	390168	47	1 =
13	9.390210	390251	390293	390334	390376	390417	390459	390500	390542	390583	390625	390666	46	2. 11
14	9.390708	390749	390791	390832	390874	390915	390957	390998	391040	391081	391123	391164	45	3. 4
15	9.391206	391247	391289	391330	391371	391413	391454	391496	391537	391579	391620	391661	44	4. 2
16	9.391703	391744	391786	391827	391868	391910	391951	391993	392034	392075	392117	392158	43	1 =
17	9.392199	392241	392282	392323	392365	392406	392447	392489	392530	392571	392613	392654	42	2. 11
18	9.392695	392737	392778	392819	392860	392902	392943	392984	393026	393067	393108	393149	41	3. 4
19	9.393191	393232	393273	393314	393356	393397	393438	393479	393520	393562	393603	393644	40	4. 2
20	9.393685	393726	393768	393809	393850	393891	393932	393974	394015	394056	394097	394138	39	1 =
21	9.394179	394221	394262	394303	394344	394385	394426	394467	394508	394549	394591	394632	38	2. 11
22	9.394673	394714	394755	394796	394837	394878	394919	394961	395002	395043	395084	395125	37	3. 4
23	9.395166	395207	395248	395289	395330	395371	395412	395453	395494	395535	395576	395617	36	4. 2
24	9.395658	395699	395740	395781	395822	395863	395904	395945	395986	396027	396068	396109	35	1 =
25	9.396150	396191	396232	396273	396314	396355	396396	396437	396478	396519	396560	396601	34	2. 11
26	9.396641	396682	396723	396764	396805	396846	396887	396927	396968	397009	397050	397091	33	3. 4
27	9.397132	397172	397213	397254	397295	397336	397377	397417	397458	397499	397540	397581	32	4. 2
28	9.397622	397662	397703	397744	397785	397826	397866	397907	397948	397989	398029	398070	31	1 =
29	9.398111	398152	398192	398233	398274	398315	398355	398396	398437	398478	398518	398559	30	2. 11
30	9.398600	398640	398681	398722	398762	398803	398844	398885	398925	398966	399007	399047	29	3. 4
31	9.399088	399129	399169	399210	399250	399291	399332	399372	399413	399454	399494	399535	28	4. 2
32	9.399575	399616	399657	399697	399738	399778	399819	399860	399900	399941	399981	400022	27	1 =
33	9.400063	400103	400144	400184	400225	400265	400306	400346	400387	400427	400468	400508	26	2. 11
34	9.400549	400589	400630	400670	400711	400751	400792	400832	400873	400913	400954	400994	25	3. 4
35	9.401035	401075	401116	401156	401197	401237	401278	401318	401358	401399	401439	401480	24	4. 2
36	9.401520	401561	401601	401641	401682	401722	401763	401803	401843	401884	401924	401964	23	1 =
37	9.402005	402045	402086	402126	402166	402207	402247	402287	402328	402368	402408	402449	22	2. 11
38	9.402489	402529	402570	402610	402650	402690	402731	402771	402811	402852	402892	402932	21	3. 4
39	9.402972	403013	403053	403093	403134	403174	403214	403254	403295	403335	403375	403415	20	4. 2
40	9.403455	403496	403536	403576	403616	403657	403697	403737	403777	403817	403858	403898	19	1 =
41	9.403938	403978	404018	404058	404099	404139	404179	404219	404259	404299	404339	404380	18	2. 11
42	9.404420	404460	404500	404540	404580	404620	404660	404701	404741	404781	404821	404861	17	3. 4
43	9.404901	404941	404981	405021	405061	405101	405141	405181	405221	405262	405302	405342	16	4. 2
44	9.405382	405422	405462	405502	405542	405582	405622	405662	405702	405742	405782	405822	15	1 =
45	9.405862	405902	405942	405982	406022	406062	406102	406142	406182	406222	406261	406301	14	2. 11
46	9.406341	406381	406421	406461	406501	406541	406581	406621	406661	406701	406741	406780	13	3. 4
47	9.406820	406860	406900	406940	406980	407020	407060	407099	407139	407179	407219	407259	12	4. 2
48	9.407299	407339	407378	407418	407458	407498	407538	407578	407617	407657	407697	407737	11	1 =
49	9.407777	407816	407856	407896	407936	407976	408015	408055	408095	408135	408174	408214	10	2. 11
50	9.408254	408294	408333	408373	408413	408453	408492	408532	408572	408612	408651	408691	9	3. 4
51	9.408731	408770	408810	408850	408889	408929	408969	409008	409048	409088	409128	409167	8	4. 2
52	9.409207	409246	409286	409326	409365	409405	409445	409484	409524	409564	409603	409643	7	1 =
53	9.409682	409722	409762	409801	409841	409880	409920	409960	409999	410039	410078	410118	6	2. 11
54	9.410158	410197	410237	410276	410316	410355	410395	410434	410474	410513	410553	410593	5	3. 4
55	9.410632	410672	410711	410751	410790	410830	410869	410909	410948	410988	411027	411067	4	4. 2
56	9.411106	411145	411185	411224	411264	411303	411343	411382	411422	411461	411501	411540	3	1 =
57	9.411579	411619	411658	411698	411737	411776	411816	411855	411895	411934	411973	412013	2	2. 11
58	9.412052	412092	412131	412170	412210	412249	412288	412328	412367	412407	412446	412485	1	3. 4
59	9.412525	412564	412603	412643	412682	412721	412760	412800	412839	412878	412918	412957	0	4. 2
Minutes	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Propor. parts
Co-sine of 75 degrees, or Sine of 165 degrees.														

TABLE XXXVI.

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LOGARITHMIC SINES.

Sine of 15 degrees, or Co-sine of 105 degrees.												Minutes	Proport. parts.
0°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
12996	41303	41307	41314	41315	41319	41323	41327	41331	41335	41339	41342	59	1" = 8
13467	41350	41354	41358	41362	41366	41370	41374	41378	41382	41386	41389	58	2. 16
13938	41397	41401	41405	41409	41413	41417	41421	41425	41429	41433	41436	57	3. 24
14408	41447	41451	41455	41459	41463	41467	41471	41475	41479	41483	41486	56	4. 31
14878	41491	41495	41499	41503	41507	41511	41515	41519	41523	41527	41530	55	1 = 8
15347	41538	41542	41546	41550	41554	41558	41562	41566	41570	41574	41577	54	2. 16
15815	41584	41588	41592	41596	41600	41604	41608	41612	41616	41620	41623	53	3. 23
16283	41632	41636	41640	41644	41648	41652	41656	41660	41664	41668	41671	52	4. 31
16751	41679	41683	41687	41691	41695	41699	41703	41707	41711	41715	41718	51	1 = 8
17217	41725	41729	41733	41737	41741	41745	41749	41753	41757	41761	41764	50	2. 16
17684	41792	41796	41800	41804	41808	41812	41816	41820	41824	41828	41831	49	3. 23
18150	41838	41842	41846	41850	41854	41858	41862	41866	41870	41874	41877	48	4. 31
18615	41885	41889	41893	41897	41901	41905	41909	41913	41917	41921	41924	47	1 = 8
19080	41918	41922	41926	41930	41934	41938	41942	41946	41950	41954	41957	46	2. 15
19544	41958	41962	41966	41970	41974	41978	41982	41986	41990	41994	41997	45	3. 23
20007	42006	42010	42014	42018	42022	42026	42030	42034	42038	42042	42045	44	4. 31
20470	42053	42057	42061	42065	42069	42073	42077	42081	42085	42089	42092	43	1 = 8
20933	42097	42101	42105	42109	42113	42117	42121	42125	42129	42133	42136	42	2. 15
21395	42143	42147	42151	42155	42159	42163	42167	42171	42175	42179	42182	41	3. 23
21857	42189	42193	42197	42201	42205	42209	42213	42217	42221	42225	42228	40	4. 31
22318	42235	42239	42243	42247	42251	42255	42259	42263	42267	42271	42274	39	1 = 8
22778	42281	42285	42289	42293	42297	42301	42305	42309	42313	42317	42320	38	2. 15
23238	42327	42331	42335	42339	42343	42347	42351	42355	42359	42363	42366	37	3. 23
23697	42373	42377	42381	42385	42389	42393	42397	42401	42405	42409	42412	36	4. 31
24150	42419	42423	42427	42431	42435	42439	42443	42447	42451	42455	42458	35	1 = 8
24615	42463	42467	42471	42475	42479	42483	42487	42491	42495	42499	42502	34	2. 15
25073	42511	42515	42519	42523	42527	42531	42535	42539	42543	42547	42550	33	3. 23
25530	42558	42562	42566	42570	42574	42578	42582	42586	42590	42594	42597	32	4. 31
25987	42605	42609	42613	42617	42621	42625	42629	42633	42637	42641	42644	31	1 = 8
26443	42648	42652	42656	42660	42664	42668	42672	42676	42680	42684	42687	30	2. 15
26899	42683	42687	42691	42695	42699	42703	42707	42711	42715	42719	42722	29	3. 23
27354	42739	42743	42747	42751	42755	42759	42763	42767	42771	42775	42778	28	4. 30
27809	42787	42791	42795	42799	42803	42807	42811	42815	42819	42823	42826	27	1 = 8
28263	42831	42835	42839	42843	42847	42851	42855	42859	42863	42867	42870	26	2. 15
28717	42875	42879	42883	42887	42891	42895	42899	42903	42907	42911	42914	25	3. 23
29170	42928	42932	42936	42940	42944	42948	42952	42956	42960	42964	42967	24	4. 30
29623	42961	42965	42969	42973	42977	42981	42985	42989	42993	42997	43000	23	1 = 8
30075	43011	43015	43019	43023	43027	43031	43035	43039	43043	43047	43050	22	2. 15
30527	43054	43058	43062	43066	43070	43074	43078	43082	43086	43090	43093	21	3. 23
30978	43101	43105	43109	43113	43117	43121	43125	43129	43133	43137	43140	20	4. 30
31429	43146	43150	43154	43158	43162	43166	43170	43174	43178	43182	43185	19	1 = 8
31879	43191	43195	43199	43203	43207	43211	43215	43219	43223	43227	43230	18	2. 15
32329	43236	43240	43244	43248	43252	43256	43260	43264	43268	43272	43275	17	3. 23
32778	43281	43285	43289	43293	43297	43301	43305	43309	43313	43317	43320	16	4. 30
33226	43326	43330	43334	43338	43342	43346	43350	43354	43358	43362	43365	15	1 = 7
33675	43371	43375	43379	43383	43387	43391	43395	43399	43403	43407	43410	14	2. 15
34122	43416	43420	43424	43428	43432	43436	43440	43444	43448	43452	43455	13	3. 22
34569	43467	43471	43475	43479	43483	43487	43491	43495	43499	43503	43506	12	4. 30
35016	43503	43507	43511	43515	43519	43523	43527	43531	43535	43539	43542	11	1 = 7
35462	43550	43554	43558	43562	43566	43570	43574	43578	43582	43586	43589	10	2. 15
35908	43594	43598	43602	43606	43610	43614	43618	43622	43626	43630	43633	9	3. 22
36353	43639	43643	43647	43651	43655	43659	43663	43667	43671	43675	43678	8	4. 30
36798	43683	43687	43691	43695	43699	43703	43707	43711	43715	43719	43722	7	1 = 7
37242	43727	43731	43735	43739	43743	43747	43751	43755	43759	43763	43766	6	2. 15
37686	43773	43777	43781	43785	43789	43793	43797	43801	43805	43809	43812	5	3. 22
38129	43816	43820	43824	43828	43832	43836	43840	43844	43848	43852	43855	4	4. 30
38572	43860	43864	43868	43872	43876	43880	43884	43888	43892	43896	43899	3	1 = 7
39014	43901	43905	43909	43913	43917	43921	43925	43929	43933	43937	43940	2	2. 15
39456	43943	43947	43951	43955	43959	43963	43967	43971	43975	43979	43982	1	3. 22
39897	43994	43998	44002	44006	44010	44014	44018	44022	44026	44030	44033	0	4. 29
0	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-sine of 74 degrees, or Sine of 164 degrees.												Minutes	Proport. parts.

LOGARITHMIC SINES.

Minutes	Sine of 16 degrees, or Co-sine of 106 degrees.											
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	9.440338	440375	440412	440448	440485	440522	440558	440595	440632	440668	440705	440741
1	9.440778	440815	440852	440888	440925	440962	440998	441035	441072	441108	441145	441181
2	9.441218	441255	441292	441328	441365	441401	441438	441475	441511	441548	441584	441621
3	9.441658	441694	441731	441767	441804	441841	441877	441914	441950	441987	442023	442060
4	9.442097	442133	442170	442206	442243	442279	442316	442352	442389	442425	442462	442498
5	9.442535	442571	442608	442644	442681	442717	442754	442790	442827	442863	442900	442936
6	9.442973	443009	443046	443082	443119	443155	443192	443228	443265	443301	443337	443374
7	9.443410	443447	443483	443520	443556	443592	443629	443665	443702	443738	443774	443811
8	9.443847	443884	443920	443956	443993	444029	444066	444102	444138	444175	444211	444247
9	9.444284	444320	444356	444393	444429	444466	444502	444538	444575	444611	444647	444683
10	9.444720	444756	444792	444829	444865	444901	444938	444974	445010	445046	445083	445119
11	9.445155	445192	445228	445264	445300	445337	445373	445409	445445	445482	445518	445554
12	9.445590	445627	445663	445699	445735	445772	445808	445844	445880	445916	445953	445989
13	9.446025	446061	446097	446134	446170	446206	446242	446278	446314	446351	446387	446423
14	9.446459	446495	446531	446568	446604	446640	446676	446712	446748	446784	446821	446857
15	9.446893	446929	446965	447001	447037	447073	447109	447146	447182	447218	447254	447290
16	9.447326	447362	447398	447434	447470	447506	447542	447578	447615	447651	447687	447723
17	9.447759	447795	447831	447867	447903	447939	447975	448011	448047	448083	448119	448155
18	9.448191	448227	448263	448299	448335	448371	448407	448443	448479	448515	448551	448587
19	9.448633	448669	448705	448741	448777	448813	448849	448885	448921	448957	448993	449029
20	9.449054	449090	449126	449162	449198	449234	449270	449305	449341	449377	449413	449449
21	9.449485	449521	449557	449593	449628	449664	449700	449736	449772	449808	449844	449879
22	9.449915	449951	449987	450023	450059	450094	450130	450166	450202	450238	450274	450309
23	9.450345	450381	450417	450453	450488	450524	450560	450596	450632	450667	450703	450739
24	9.450775	450811	450846	450882	450918	450954	450989	451025	451061	451096	451132	451168
25	9.451204	451239	451275	451311	451347	451382	451418	451454	451489	451525	451561	451597
26	9.451632	451668	451704	451739	451775	451811	451846	451882	451918	451953	451989	452025
27	9.452060	452096	452132	452167	452203	452239	452274	452310	452345	452381	452417	452452
28	9.452488	452524	452559	452595	452630	452666	452702	452737	452773	452808	452844	452880
29	9.452915	452951	452986	453022	453057	453093	453129	453164	453200	453235	453271	453306
30	9.453342	453377	453413	453448	453484	453520	453555	453591	453626	453662	453697	453733
31	9.453768	453804	453839	453875	453910	453946	453981	454017	454052	454088	454123	454158
32	9.454194	454229	454265	454300	454336	454371	454407	454442	454478	454513	454548	454584
33	9.454619	454655	454690	454726	454761	454796	454832	454867	454903	454938	454973	455009
34	9.455044	455080	455115	455150	455186	455221	455256	455292	455327	455363	455398	455433
35	9.455469	455504	455539	455575	455610	455645	455681	455716	455751	455787	455822	455857
36	9.455893	455928	455963	455999	456034	456069	456104	456140	456175	456210	456246	456281
37	9.456316	456351	456387	456422	456457	456492	456528	456563	456598	456634	456669	456704
38	9.456739	456774	456810	456845	456880	456915	456951	456986	457021	457056	457091	457127
39	9.457162	457197	457232	457267	457303	457338	457373	457408	457443	457479	457514	457549
40	9.457584	457619	457654	457690	457725	457760	457795	457830	457865	457900	457936	457971
41	9.458006	458041	458076	458111	458146	458181	458217	458252	458287	458322	458357	458392
42	9.458427	458462	458497	458532	458567	458603	458638	458673	458708	458743	458778	458813
43	9.458848	458883	458918	458953	458988	459023	459058	459093	459128	459163	459198	459233
44	9.459268	459303	459338	459373	459408	459443	459478	459513	459548	459583	459618	459653
45	9.459688	459723	459758	459793	459828	459863	459898	459933	459968	460003	460038	460073
46	9.460108	460143	460178	460213	460248	460283	460318	460352	460387	460422	460457	460492
47	9.460527	460562	460597	460632	460667	460702	460736	460771	460806	460841	460876	460911
48	9.460946	460981	461015	461050	461085	461120	461155	461190	461225	461259	461294	461329
49	9.461364	461399	461434	461468	461503	461538	461573	461608	461642	461677	461712	461747
50	9.461782	461816	461851	461886	461921	461956	461990	462025	462060	462095	462129	462164
51	9.462199	462234	462268	462303	462338	462373	462407	462442	462477	462512	462546	462581
52	9.462616	462651	462685	462720	462755	462789	462824	462859	462893	462928	462963	462998
53	9.463032	463067	463102	463136	463171	463206	463240	463275	463310	463344	463379	463414
54	9.463448	463483	463518	463552	463587	463622	463656	463691	463725	463760	463795	463829
55	9.463864	463899	463933	463968	464002	464037	464072	464106	464141	464175	464210	464245
56	9.464279	464314	464348	464383	464417	464452	464487	464521	464556	464590	464625	464659
57	9.464694	464728	464763	464797	464832	464866	464901	464936	464970	465005	465039	465074
58	9.465108	465143	465177	465212	465246	465281	465315	465350	465384	465419	465453	465487
59	9.465522	465556	465591	465625	465660	465694	465729	465763	465798	465832	465867	465901
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'
Co-sine of 73 degrees, or Sine of 163 degrees.												

LOGARITHMIC SINES.

Sine of 17 degrees, or Co-sine of 107 degrees.											Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
5	465970	466004	466039	466073	466108	466142	466176	466211	466245	466280	59	1" = 7
6	466383	466417	466452	466486	466520	466555	466589	466623	466658	466692	58	2. 14
7	466795	466830	466864	466898	466933	466967	467001	467036	467070	467104	57	3. 21
8	467207	467242	467276	467310	467345	467379	467413	467448	467482	467516	56	4. 28
9	467619	467653	467688	467722	467756	467790	467825	467859	467893	467928	55	1" = 7
10	468030	468065	468099	468133	468167	468202	468236	468270	468304	468338	54	2. 14
11	468441	468475	468510	468544	468578	468612	468646	468681	468715	468749	53	3. 21
12	468852	468886	468920	468954	468988	469022	469057	469091	469125	469159	52	4. 27
13	469262	469296	469330	469364	469398	469432	469466	469500	469535	469569	51	1" = 7
14	469671	469705	469739	469773	469808	469842	469876	469910	469944	469978	50	2. 14
15	470080	470114	470148	470182	470216	470251	470285	470319	470353	470387	49	3. 20
16	470489	470523	470557	470591	470625	470659	470693	470727	470761	470795	48	4. 27
17	470897	470931	470965	470999	471033	471067	471101	471135	471169	471203	47	1" = 7
18	471305	471339	471373	471407	471441	471475	471509	471543	471577	471611	46	2. 14
19	471713	471746	471780	471814	471848	471882	471916	471950	471984	472018	45	3. 20
20	472120	472153	472187	472221	472255	472289	472323	472357	472391	472425	44	4. 27
21	472526	472560	472594	472628	472662	472695	472729	472763	472797	472831	43	1" = 7
22	472932	472966	473000	473034	473068	473101	473135	473169	473203	473237	42	2. 14
23	473338	473372	473406	473439	473473	473507	473541	473575	473608	473642	41	3. 20
24	473743	473777	473811	473845	473879	473912	473946	473980	474013	474047	40	4. 27
25	474148	474182	474216	474250	474283	474317	474351	474384	474418	474452	39	1" = 7
26	474553	474587	474620	474654	474688	474721	474755	474789	474822	474856	38	2. 13
27	474957	474991	475024	475058	475092	475125	475159	475193	475226	475260	37	3. 20
28	475361	475394	475428	475462	475495	475529	475562	475596	475630	475663	36	4. 27
29	475764	475798	475831	475865	475898	475932	475966	475999	476033	476066	35	1" = 7
30	476167	476201	476234	476268	476301	476335	476368	476402	476435	476469	34	2. 13
31	476569	476603	476636	476670	476704	476737	476771	476804	476838	476871	33	3. 20
32	476971	477005	477038	477072	477105	477139	477172	477206	477239	477273	32	4. 27
33	477373	477407	477440	477474	477507	477540	477574	477607	477641	477674	31	1" = 7
34	477774	477808	477841	477875	477908	477941	477975	478008	478042	478075	30	2. 13
35	478175	478209	478242	478275	478309	478342	478376	478409	478442	478476	29	3. 20
36	478576	478609	478642	478676	478709	478742	478776	478809	478842	478876	28	4. 27
37	478976	479009	479042	479076	479109	479142	479176	479209	479242	479275	27	1" = 7
38	479375	479409	479442	479475	479508	479542	479575	479608	479642	479675	26	2. 13
39	479775	479808	479841	479874	479908	479941	479974	480007	480040	480074	25	3. 20
40	480173	480207	480240	480273	480306	480339	480373	480406	480439	480472	24	4. 27
41	480572	480605	480638	480671	480704	480738	480771	480804	480837	480870	23	1" = 7
42	480970	481003	481036	481069	481102	481136	481169	481202	481235	481268	22	2. 13
43	481367	481401	481434	481467	481500	481533	481566	481599	481632	481665	21	3. 20
44	481765	481798	481831	481864	481897	481930	481963	481996	482029	482062	20	4. 27
45	482161	482194	482228	482261	482294	482327	482360	482393	482426	482459	19	1" = 7
46	482558	482591	482624	482657	482690	482723	482756	482789	482822	482855	18	2. 13
47	482954	482987	483020	483053	483086	483119	483152	483185	483218	483251	17	3. 20
48	483349	483382	483415	483448	483481	483514	483547	483580	483613	483646	16	4. 26
49	483745	483778	483811	483843	483876	483909	483942	483975	484008	484041	15	1" = 7
50	484140	484172	484205	484238	484271	484304	484337	484370	484402	484435	14	2. 13
51	484534	484567	484600	484632	484665	484698	484731	484764	484797	484829	13	3. 20
52	484928	484961	484994	485026	485059	485092	485125	485158	485190	485223	12	4. 26
53	485322	485355	485387	485420	485453	485486	485518	485551	485584	485617	11	1" = 7
54	485715	485748	485780	485813	485846	485879	485911	485944	485977	486010	10	2. 13
55	486108	486140	486173	486206	486239	486271	486304	486337	486369	486402	9	3. 20
56	486500	486533	486566	486598	486631	486664	486696	486729	486762	486794	8	4. 26
57	486892	486925	486958	486990	487023	487055	487088	487121	487153	487186	7	1" = 7
58	487284	487317	487349	487382	487414	487447	487480	487512	487545	487577	6	2. 13
59	487675	487708	487740	487773	487806	487838	487871	487903	487936	487968	5	3. 20
60	488066	488099	488131	488164	488196	488229	488261	488294	488326	488359	4	4. 26
61	488457	488489	488522	488554	488587	488619	488652	488684	488717	488749	3	1" = 7
62	488847	488879	488912	488944	488977	489009	489042	489074	489107	489139	2	2. 13
63	489236	489269	489301	489334	489366	489399	489431	489464	489496	489529	1	3. 20
64	489626	489658	489691	489723	489756	489788	489820	489853	489885	489918	0	4. 26
65	489950											
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.
Co-sine of 72 degrees, or Sine of 162 degrees.											Minutes	Proport. parts.

LOGARITHMIC SINES.

Sine of 19 degrees, or Co-sine of 109 degrees.											Minutes	Proportional parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
2 512673	512703	512734	512764	512795	512825	512856	512886	512917	512948	512978	59	1" = 6
9 513039	513070	513100	513131	513161	513192	513222	513253	513283	513314	513345	58	2. 12
5 513406	513436	513467	513497	513528	513558	513589	513619	513650	513680	513711	57	3. 18
1 513778	513808	513838	513868	513898	513928	513958	513988	514018	514048	514078	56	4. 24
7 514137	514168	514198	514229	514259	514289	514320	514350	514381	514411	514442	55	1 = 6
2 514503	514533	514563	514594	514624	514655	514685	514715	514746	514776	514807	54	2. 12
7 514868	514898	514928	514959	514989	515019	515050	515080	515111	515141	515171	53	3. 18
2 515232	515262	515293	515323	515354	515384	515414	515445	515475	515505	515536	52	4. 24
6 515596	515627	515657	515687	515718	515748	515778	515809	515839	515869	515900	51	1 = 6
0 515960	515991	516021	516051	516082	516112	516142	516172	516203	516233	516263	50	2. 12
4 516324	516354	516385	516415	516445	516475	516506	516536	516566	516596	516627	49	3. 18
7 516687	516717	516748	516778	516808	516838	516869	516899	516929	516959	516990	48	4. 24
0 517050	517080	517111	517141	517171	517201	517231	517262	517292	517322	517353	47	1 = 6
2 517413	517443	517473	517503	517533	517564	517594	517624	517654	517684	517715	46	2. 12
5 517775	517805	517835	517865	517896	517926	517956	517986	518016	518046	518077	45	3. 18
7 518137	518167	518197	518227	518257	518288	518318	518348	518378	518408	518438	44	4. 24
8 518498	518528	518559	518589	518619	518649	518679	518709	518739	518769	518799	43	1 = 6
0 518860	518890	518920	518950	518980	519010	519040	519070	519100	519130	519160	42	2. 12
5 519220	519251	519281	519311	519341	519371	519401	519431	519461	519491	519521	41	3. 18
1 519581	519611	519641	519671	519701	519731	519761	519791	519821	519851	519881	40	4. 24
1 519941	519971	520001	520031	520061	520091	520121	520151	520181	520211	520241	39	1 = 6
1 520301	520331	520361	520391	520421	520451	520481	520511	520541	520571	520601	38	2. 12
1 520661	520691	520721	520751	520780	520810	520840	520870	520900	520930	520960	37	3. 18
2 521020	521050	521080	521110	521140	521169	521199	521229	521259	521289	521319	36	4. 24
9 521379	521409	521439	521468	521498	521528	521558	521588	521618	521648	521678	35	1 = 6
7 521737	521767	521797	521827	521857	521887	521916	521946	521976	522006	522036	34	2. 12
6 522096	522125	522155	522185	522215	522245	522274	522304	522334	522364	522394	33	3. 18
1 522453	522483	522513	522543	522573	522602	522632	522662	522692	522722	522751	32	4. 24
1 522811	522841	522870	522900	522930	522960	522990	523019	523049	523079	523109	31	1 = 6
3 523168	523198	523228	523257	523287	523317	523347	523376	523406	523436	523466	30	2. 12
5 523525	523555	523584	523614	523644	523674	523703	523733	523763	523792	523822	29	3. 18
2 523882	523911	523941	523971	524000	524030	524060	524089	524119	524149	524178	28	4. 24
5 524238	524267	524297	524327	524356	524386	524416	524445	524475	524505	524534	27	1 = 6
1 524594	524623	524653	524683	524712	524742	524772	524801	524831	524860	524890	26	2. 12
2 524949	524979	525009	525038	525068	525097	525127	525157	525186	525216	525245	25	3. 18
5 525305	525334	525364	525393	525423	525452	525482	525512	525541	525571	525600	24	4. 24
2 525659	525689	525719	525748	525778	525807	525837	525866	525896	525925	525955	23	1 = 6
1 526014	526044	526073	526103	526132	526162	526191	526221	526250	526280	526309	22	2. 12
7 526368	526398	526427	526457	526486	526516	526545	526575	526604	526634	526663	21	3. 18
1 526722	526752	526781	526811	526840	526870	526899	526929	526958	526987	527017	20	4. 24
5 527076	527105	527135	527164	527194	527223	527253	527282	527311	527341	527370	19	1 = 6
2 527429	527459	527488	527517	527547	527576	527606	527635	527664	527694	527723	18	2. 12
3 527782	527811	527841	527870	527900	527929	527958	527988	528017	528047	528076	17	3. 18
5 528135	528164	528193	528223	528252	528282	528311	528340	528370	528399	528428	16	4. 24
5 528487	528516	528546	528575	528604	528634	528663	528692	528722	528751	528780	15	1 = 6
2 528839	528868	528898	528927	528956	528986	529015	529044	529074	529103	529132	14	2. 12
1 529191	529220	529249	529279	529308	529337	529366	529396	529425	529454	529484	13	3. 18
3 529542	529571	529601	529630	529659	529688	529718	529747	529776	529805	529835	12	4. 24
4 529893	529922	529952	529981	530010	530039	530069	530098	530127	530156	530185	11	1 = 6
5 530244	530273	530302	530331	530361	530390	530419	530448	530477	530507	530536	10	2. 12
5 530594	530623	530653	530682	530711	530740	530769	530798	530828	530857	530886	9	3. 18
5 530944	530973	531003	531032	531061	531090	531119	531148	531177	531207	531236	8	4. 24
5 531294	531323	531352	531381	531411	531440	531469	531498	531527	531556	531585	7	1 = 6
4 531643	531673	531702	531731	531760	531789	531818	531847	531876	531905	531934	6	2. 12
4 531993	532022	532051	532080	532109	532138	532167	532196	532225	532254	532283	5	3. 18
2 532341	532370	532399	532429	532458	532487	532516	532545	532574	532603	532632	4	4. 24
1 532690	532719	532748	532777	532806	532835	532864	532893	532922	532951	532980	3	1 = 6
9 533038	533067	533096	533125	533154	533183	533212	533241	533270	533299	533328	2	2. 12
7 533386	533415	533444	533473	533502	533531	533560	533589	533618	533647	533676	1	3. 18
4 533733	533762	533791	533820	533849	533878	533907	533936	533965	533994	534023	0	4. 24
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proportional parts.
Co-sine of 70 degrees, or Sine of 160 degrees.											Minutes	Proportional parts.

LOGARITHMIC SINES.

Sine of 20 degrees, or Co-sine of 110 degrees.														Minutes	Proport.
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
0	9.534052	534081	534110	534138	534167	534196	534225	534254	534283	534312	534341	534370	59	1"	
1	9.534399	534428	534456	534485	534514	534543	534572	534601	534630	534659	534688	534716	58	2.	
2	9.534745	534774	534803	534832	534861	534890	534918	534947	534976	535005	535034	535063	57	3.	
3	9.535092	535120	535149	535178	535207	535236	535265	535293	535322	535351	535380	535409	56	4.	
4	9.535438	535466	535495	535524	535553	535582	535610	535639	535668	535697	535726	535754	55	1"	
5	9.535783	535812	535841	535870	535898	535927	535956	535985	536014	536042	536071	536100	54	2.	
6	9.536129	536157	536186	536215	536244	536272	536301	536330	536359	536387	536416	536445	53	3.	
7	9.536474	536502	536531	536560	536589	536617	536646	536675	536704	536732	536761	536790	52	4.	
8	9.536818	536847	536876	536905	536933	536962	536991	537019	537048	537077	537106	537134	51	1"	
9	9.537163	537192	537220	537249	537278	537306	537335	537364	537392	537421	537450	537478	50	2.	
10	9.537507	537536	537564	537593	537622	537650	537679	537708	537736	537765	537794	537822	49	3.	
11	9.537851	537879	537908	537937	537965	537994	538023	538051	538080	538109	538137	538166	48	4.	
12	9.538194	538223	538252	538280	538309	538337	538366	538395	538423	538452	538480	538509	47	1"	
13	9.538538	538566	538595	538623	538652	538680	538709	538738	538766	538795	538823	538852	46	2.	
14	9.538880	538909	538938	538966	538995	539023	539052	539080	539109	539137	539166	539195	45	3.	
15	9.539223	539252	539280	539309	539337	539366	539394	539423	539451	539480	539508	539537	44	4.	
16	9.539565	539594	539622	539651	539679	539708	539736	539765	539793	539822	539850	539879	43	1"	
17	9.539907	539936	539964	539993	540021	540050	540078	540107	540135	540164	540192	540221	42	2.	
18	9.540249	540277	540306	540334	540363	540391	540420	540448	540477	540505	540533	540562	41	3.	
19	9.540590	540619	540647	540676	540704	540732	540761	540789	540818	540846	540875	540903	40	4.	
20	9.540931	540960	540988	541017	541045	541073	541102	541130	541159	541187	541215	541244	39	1"	
21	9.541272	541301	541329	541357	541386	541414	541442	541471	541499	541528	541556	541584	38	2.	
22	9.541613	541641	541669	541698	541726	541754	541783	541811	541839	541868	541896	541924	37	3.	
23	9.541953	541981	542009	542038	542066	542094	542123	542151	542179	542208	542236	542264	36	4.	
24	9.542293	542321	542349	542378	542406	542434	542462	542491	542519	542547	542576	542604	35	1"	
25	9.542632	542660	542688	542717	542745	542774	542802	542830	542858	542887	542915	542943	34	2.	
26	9.542971	543000	543028	543056	543084	543113	543141	543169	543197	543226	543254	543282	33	3.	
27	9.543310	543339	543367	543395	543423	543451	543480	543508	543536	543564	543593	543621	32	4.	
28	9.543649	543677	543705	543734	543762	543790	543818	543846	543875	543903	543931	543959	31	1"	
29	9.543987	544015	544044	544072	544100	544128	544156	544185	544213	544241	544269	544297	30	2.	
30	9.544325	544354	544382	544410	544438	544466	544494	544522	544551	544579	544607	544635	29	3.	
31	9.544663	544691	544719	544747	544776	544804	544832	544860	544888	544916	544944	544972	28	4.	
32	9.545001	545029	545057	545085	545113	545141	545169	545197	545225	545253	545281	545310	27	1"	
33	9.545338	545366	545394	545422	545450	545478	545506	545534	545562	545590	545618	545646	26	2.	
34	9.545675	545703	545731	545759	545787	545815	545843	545871	545899	545927	545955	545983	25	3.	
35	9.546011	546039	546067	546095	546123	546151	546179	546207	546235	546263	546291	546319	24	4.	
36	9.546347	546375	546403	546431	546459	546487	546515	546543	546571	546599	546627	546655	23	1"	
37	9.546683	546711	546739	546767	546795	546823	546851	546879	546907	546935	546963	546991	22	2.	
38	9.547019	547047	547075	547103	547131	547159	547187	547215	547243	547270	547298	547326	21	3.	
39	9.547354	547382	547410	547438	547466	547494	547522	547550	547578	547606	547633	547661	20	4.	
40	9.547689	547717	547745	547773	547801	547829	547857	547885	547913	547940	547968	547996	19	1"	
41	9.548024	548052	548080	548108	548136	548163	548191	548219	548247	548275	548303	548331	18	2.	
42	9.548359	548386	548414	548442	548470	548498	548526	548554	548581	548609	548637	548665	17	3.	
43	9.548693	548721	548748	548776	548804	548832	548860	548888	548915	548943	548971	548999	16	4.	
44	9.549027	549055	549082	549110	549138	549166	549193	549221	549249	549277	549305	549332	15	1"	
45	9.549360	549388	549416	549444	549471	549499	549527	549555	549582	549610	549638	549666	14	2.	
46	9.549694	549721	549749	549777	549805	549832	549860	549888	549916	549943	549971	549999	13	3.	
47	9.550027	550055	550082	550110	550137	550165	550193	550221	550248	550276	550304	550332	12	4.	
48	9.550359	550387	550415	550442	550470	550498	550525	550553	550581	550609	550636	550664	11	1"	
49	9.550692	550719	550747	550775	550802	550830	550858	550885	550913	550941	550968	550996	10	2.	
50	9.551024	551051	551079	551107	551134	551162	551190	551217	551245	551273	551300	551328	9	3.	
51	9.551356	551383	551411	551439	551466	551494	551521	551549	551577	551604	551632	551660	8	4.	
52	9.551687	551715	551742	551770	551798	551825	551853	551880	551908	551936	551963	551991	7	1"	
53	9.552018	552046	552074	552101	552129	552156	552184	552212	552239	552267	552294	552322	6	2.	
54	9.552349	552377	552405	552432	552460	552487	552515	552542	552570	552597	552625	552653	5	3.	
55	9.552680	552708	552735	552763	552790	552818	552845	552873	552900	552928	552955	552983	4	4.	
56	9.553011	553038	553066	553093	553121	553148	553176	553203	553231	553258	553286	553313	3	1"	
57	9.553341	553368	553396	553423	553451	553478	553506	553533	553561	553588	553615	553643	2	2.	
58	9.553670	553698	553725	553753	553780	553808	553835	553863	553890	553918	553945	553973	1	3.	
59	9.554000	554027	554055	554082	554110	554137	554165	554192	554219	554247	554274	554302	0	4.	
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport.	
Co-sine of 69 degrees, or Sine of 159 degrees.															

LOGARITHMIC SINES

Sine of 21 degrees, or Co-sine of 111 degrees.												Minutes	Proport. parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
9.554329	554357	554384	554411	554439	554466	554494	554521	554549	554576	554603	554631	59	1" = 5
9.554658	554686	554713	554740	554768	554795	554823	554850	554877	554905	554932	554959	58	2. 11
9.554987	555014	555042	555069	555096	555124	555151	555178	555206	555233	555261	555288	57	3. 16
9.555315	555343	555370	555397	555425	555452	555479	555507	555534	555561	555589	555616	56	4. 22
9.555643	555671	555698	555725	555753	555780	555807	555835	555862	555889	555917	555944	55	1" = 5
9.555971	555998	556026	556053	556080	556108	556135	556162	556190	556217	556244	556271	54	2. 11
9.556299	556326	556353	556381	556408	556435	556462	556490	556517	556544	556571	556599	53	3. 16
9.556626	556653	556680	556708	556735	556762	556789	556817	556844	556871	556898	556926	52	4. 22
9.556953	556980	557007	557035	557062	557089	557116	557144	557171	557198	557225	557252	51	1" = 5
9.557280	557307	557334	557361	557388	557416	557443	557470	557497	557524	557552	557579	50	2. 11
9.557606	557633	557660	557688	557715	557742	557769	557796	557823	557851	557878	557905	49	3. 16
9.557932	557959	557986	558014	558041	558068	558095	558122	558149	558177	558204	558231	48	4. 22
9.558258	558285	558312	558339	558367	558394	558421	558448	558475	558502	558529	558556	47	1" = 5
9.558584	558611	558638	558665	558692	558719	558746	558773	558800	558828	558855	558882	46	2. 11
9.558909	558936	558963	558990	559017	559044	559071	559098	559126	559153	559180	559207	45	3. 16
9.559234	559261	559288	559315	559342	559369	559396	559423	559450	559477	559504	559531	44	4. 22
9.559559	559586	559613	559640	559667	559694	559721	559748	559775	559802	559829	559856	43	1" = 5
9.559883	559910	559937	559964	559991	560018	560045	560072	560099	560126	560153	560180	42	2. 11
9.560207	560234	560261	560288	560315	560342	560369	560396	560423	560450	560477	560504	41	3. 16
9.560531	560558	560585	560612	560639	560666	560693	560720	560747	560774	560801	560828	40	4. 22
9.560855	560882	560909	560935	560962	560989	561016	561043	561070	561097	561124	561151	39	1" = 5
9.561178	561205	561232	561259	561286	561313	561340	561366	561393	561420	561447	561474	38	2. 11
9.561501	561528	561555	561582	561609	561636	561662	561689	561716	561743	561770	561797	37	3. 16
9.561824	561851	561878	561904	561931	561958	561985	562012	562039	562066	562093	562119	36	4. 22
9.562146	562173	562200	562227	562254	562281	562307	562334	562361	562388	562415	562442	35	1" = 5
9.562469	562495	562522	562549	562576	562603	562630	562656	562683	562710	562737	562764	34	2. 11
9.562790	562817	562844	562871	562898	562925	562951	562978	563005	563032	563059	563085	33	3. 16
9.563112	563139	563166	563192	563219	563246	563273	563300	563326	563353	563380	563407	32	4. 21
9.563434	563460	563487	563514	563541	563567	563594	563621	563648	563674	563701	563728	31	1" = 5
9.563755	563781	563808	563835	563862	563888	563915	563942	563969	563995	564022	564049	30	2. 11
9.564075	564102	564129	564156	564182	564209	564236	564263	564289	564316	564343	564369	29	3. 16
9.564396	564423	564449	564476	564503	564530	564556	564583	564610	564636	564663	564690	28	4. 21
9.564716	564743	564770	564796	564823	564850	564876	564903	564930	564956	564983	565010	27	1" = 5
9.565036	565063	565090	565116	565143	565170	565196	565223	565250	565276	565303	565330	26	2. 11
9.565356	565383	565409	565436	565463	565489	565516	565543	565569	565596	565622	565649	25	3. 16
9.565676	565702	565729	565755	565782	565809	565835	565862	565888	565915	565941	565968	24	4. 21
9.565995	566021	566048	566075	566101	566128	566154	566181	566207	566234	566261	566287	23	1" = 5
9.566314	566340	566367	566393	566420	566447	566473	566500	566526	566553	566579	566606	22	2. 11
9.566632	566659	566686	566712	566739	566765	566792	566818	566845	566871	566898	566924	21	3. 16
9.566951	566977	567004	567030	567057	567083	567110	567136	567163	567189	567216	567242	20	4. 21
9.567269	567295	567322	567348	567375	567401	567428	567454	567481	567507	567534	567560	19	1" = 5
9.567587	567613	567640	567666	567693	567719	567746	567772	567799	567825	567852	567878	18	2. 11
9.567904	567931	567957	567984	568010	568037	568063	568090	568116	568142	568169	568195	17	3. 16
9.568222	568248	568275	568301	568327	568354	568380	568407	568433	568460	568486	568512	16	4. 21
9.568539	568565	568592	568618	568644	568671	568697	568724	568750	568776	568803	568829	15	1" = 5
9.568856	568882	568908	568935	568961	568987	569014	569040	569067	569093	569119	569146	14	2. 11
9.569172	569198	569225	569251	569278	569304	569330	569357	569383	569409	569436	569462	13	3. 16
9.569488	569515	569541	569567	569594	569620	569646	569673	569699	569725	569752	569778	12	4. 21
9.569803	569831	569857	569883	569910	569936	569962	569989	570015	570041	570067	570094	11	1" = 5
9.570120	570146	570173	570199	570225	570252	570278	570304	570330	570357	570383	570409	10	2. 11
9.570436	570462	570488	570514	570541	570567	570593	570619	570646	570672	570698	570724	9	3. 16
9.570751	570777	570803	570829	570856	570882	570908	570934	570961	570987	571013	571039	8	4. 21
9.571066	571092	571118	571144	571171	571197	571223	571249	571275	571302	571328	571354	7	1" = 5
9.571380	571406	571433	571459	571485	571511	571537	571564	571590	571616	571642	571668	6	2. 10
9.571695	571721	571747	571773	571799	571826	571852	571878	571904	571930	571956	571983	5	3. 16
9.572009	572035	572061	572087	572113	572140	572166	572192	572218	572244	572270	572297	4	4. 21
9.572323	572349	572375	572401	572427	572453	572479	572506	572532	572558	572584	572610	3	1" = 5
9.572636	572662	572688	572715	572741	572767	572793	572819	572845	572871	572897	572923	2	2. 10
9.572950	572976	573002	573028	573054	573080	573106	573132	573158	573184	573210	573237	1	3. 16
9.573263	573289	573315	573341	573367	573393	573419	573445	573471	573497	573523	573549	0	4. 21
60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-sine of 68 degrees, or Sine of 158 degrees.													

LOGARITHMIC SINES.

Minutes	Sine of 22 degrees, or Co-sine of 112 degrees.												Minutes
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
0	9.573575	573602	573628	573654	573680	573706	573732	573758	573784	573810	573836	573862	59
1	9.573888	573914	573940	573966	573992	574018	574044	574070	574096	574122	574148	574174	58
2	9.574200	574226	574252	574278	574304	574330	574356	574382	574408	574434	574460	574486	57
3	9.574512	574538	574564	574590	574616	574642	574668	574694	574720	574746	574772	574798	56
4	9.574824	574850	574876	574902	574928	574954	574980	575006	575032	575058	575084	575110	55
5	9.575136	575162	575187	575213	575239	575265	575291	575317	575343	575369	575395	575421	54
6	9.575447	575473	575499	575525	575551	575576	575602	575628	575654	575680	575706	575732	53
7	9.575758	575784	575810	575836	575861	575887	575913	575939	575965	575991	576017	576043	52
8	9.576069	576094	576120	576146	576172	576198	576224	576250	576276	576301	576327	576353	51
9	9.576379	576405	576431	576457	576482	576508	576534	576560	576586	576612	576638	576663	50
10	9.576689	576715	576741	576767	576793	576818	576844	576870	576896	576922	576948	576973	49
11	9.576999	577025	577051	577077	577102	577128	577154	577180	577206	577231	577257	577283	48
12	9.577309	577335	577360	577386	577412	577438	577464	577489	577515	577541	577567	577593	47
13	9.577618	577644	577670	577696	577721	577747	577773	577799	577824	577850	577876	577902	46
14	9.577928	577953	577979	578005	578031	578056	578082	578108	578133	578159	578185	578211	45
15	9.578236	578262	578288	578314	578339	578365	578391	578417	578442	578468	578494	578519	44
16	9.578545	578571	578597	578622	578648	578674	578699	578725	578751	578776	578802	578828	43
17	9.578854	578879	578905	578931	578956	578982	579008	579033	579059	579085	579110	579136	42
18	9.579162	579187	579213	579239	579264	579290	579316	579341	579367	579393	579418	579444	41
19	9.579470	579495	579521	579546	579572	579598	579623	579649	579675	579700	579726	579752	40
20	9.579777	579803	579828	579854	579880	579905	579931	579957	579982	580008	580033	580059	39
21	9.580085	580110	580136	580161	580187	580213	580238	580264	580289	580315	580341	580366	38
22	9.580392	580417	580443	580468	580494	580520	580545	580571	580596	580622	580648	580673	37
23	9.580699	580724	580750	580775	580801	580826	580852	580878	580903	580929	580954	580980	36
24	9.581005	581031	581056	581082	581107	581133	581158	581184	581210	581235	581261	581286	35
25	9.581312	581337	581363	581388	581414	581439	581465	581490	581516	581541	581567	581592	34
26	9.581618	581643	581669	581694	581720	581745	581771	581796	581822	581847	581873	581898	33
27	9.581924	581949	581975	582000	582026	582051	582076	582102	582127	582153	582178	582204	32
28	9.582229	582255	582280	582306	582331	582356	582382	582407	582433	582458	582484	582509	31
29	9.582535	582560	582585	582611	582636	582662	582687	582713	582738	582763	582789	582814	30
30	9.582840	582865	582891	582916	582941	582967	582992	583018	583043	583068	583094	583119	29
31	9.583145	583170	583195	583221	583246	583272	583297	583322	583348	583373	583398	583424	28
32	9.583449	583475	583500	583525	583551	583576	583601	583627	583652	583677	583703	583728	27
33	9.583754	583779	583804	583830	583855	583880	583906	583931	583956	583982	584007	584032	26
34	9.584058	584083	584108	584134	584159	584184	584210	584235	584260	584286	584311	584336	25
35	9.584362	584387	584412	584437	584463	584488	584513	584539	584564	584589	584615	584640	24
36	9.584665	584690	584716	584741	584766	584792	584817	584842	584867	584893	584918	584943	23
37	9.584969	584994	585019	585044	585070	585095	585120	585145	585171	585196	585221	585246	22
38	9.585272	585297	585322	585347	585373	585398	585423	585448	585474	585499	585524	585549	21
39	9.585575	585600	585625	585650	585675	585701	585726	585751	585776	585801	585827	585852	20
40	9.585877	585902	585928	585953	585978	586003	586028	586054	586079	586104	586129	586154	19
41	9.586180	586205	586230	586255	586280	586305	586331	586356	586381	586406	586431	586456	18
42	9.586482	586507	586532	586557	586582	586607	586633	586658	586683	586708	586733	586758	17
43	9.586784	586809	586834	586859	586884	586909	586934	586959	586985	587010	587035	587060	16
44	9.587085	587110	587135	587161	587186	587211	587236	587261	587286	587311	587336	587361	15
45	9.587387	587412	587437	587462	587487	587512	587537	587562	587587	587612	587638	587663	14
46	9.587688	587713	587738	587763	587788	587813	587838	587863	587888	587913	587938	587964	13
47	9.587989	588014	588039	588064	588089	588114	588139	588164	588189	588214	588239	588264	12
48	9.588289	588314	588339	588364	588389	588414	588439	588464	588489	588515	588540	588565	11
49	9.588590	588615	588640	588665	588690	588715	588740	588765	588790	588815	588840	588865	10
50	9.588890	588915	588940	588965	588990	589015	589040	589065	589090	589115	589140	589165	9
51	9.589190	589215	589240	589265	589290	589315	589340	589365	589390	589415	589440	589465	8
52	9.589489	589514	589539	589564	589589	589614	589639	589664	589689	589714	589739	589764	7
53	9.589789	589814	589839	589864	589889	589914	589939	589964	589989	590014	590039	590064	6
54	9.590088	590113	590138	590163	590188	590213	590238	590263	590287	590312	590337	590362	5
55	9.590387	590412	590437	590462	590487	590511	590536	590561	590586	590611	590636	590661	4
56	9.590686	590711	590735	590760	590785	590810	590835	590860	590885	590910	590934	590959	3
57	9.590984	591009	591034	591059	591084	591108	591133	591158	591183	591208	591233	591258	2
58	9.591282	591307	591332	591357	591382	591407	591431	591456	591481	591506	591531	591556	1
59	9.591580	591605	591630	591655	591680	591704	591729	591754	591779	591804	591828	591853	0
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes
Co-sine of 67 degrees, or Sine of 157 degrees.													

LOGARITHMIC SINES.

Sine of 23 degrees, or Co-sine of 113 degrees.											Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
878	591903	591928	591953	591977	592002	592027	592052	592076	592101	592126	59	1" = 5
1176	592200	592225	592250	592275	592299	592324	592349	592374	592399	592423	58	2. 10
1473	592498	592522	592547	592572	592597	592621	592646	592671	592696	592720	57	3. 15
1770	592795	592819	592844	592869	592894	592918	592943	592968	592992	593017	56	4. 20
2067	593091	593116	593141	593165	593190	593215	593240	593264	593289	593314	55	1" = 5
2363	593388	593413	593437	593462	593487	593511	593536	593561	593585	593610	54	2. 10
2659	593684	593709	593733	593758	593783	593808	593832	593857	593882	593906	53	3. 15
2956	593980	594005	594029	594054	594079	594103	594128	594153	594177	594202	52	4. 20
3251	594276	594301	594325	594350	594375	594399	594424	594448	594473	594498	51	1" = 5
3547	594572	594596	594621	594645	594670	594695	594719	594744	594768	594793	50	2. 10
3843	594867	594891	594916	594941	594965	594990	595014	595039	595064	595088	49	3. 15
4137	595162	595187	595211	595236	595260	595285	595309	595334	595359	595383	48	4. 20
4432	595457	595481	595506	595530	595555	595580	595604	595629	595653	595678	47	1" = 5
4727	595751	595776	595800	595825	595850	595874	595899	595923	595948	595972	46	2. 10
5021	596046	596070	596095	596119	596144	596168	596193	596217	596242	596266	45	3. 15
5315	596340	596364	596389	596413	596438	596462	596487	596511	596536	596560	44	4. 20
5609	596634	596658	596683	596707	596732	596756	596781	596805	596830	596854	43	1" = 5
5903	596928	596952	596976	597001	597025	597050	597074	597099	597123	597148	42	2. 10
6197	597221	597245	597270	597294	597319	597343	597368	597392	597416	597441	41	3. 15
6490	597514	597539	597563	597587	597612	597636	597661	597685	597709	597734	40	4. 20
6783	597807	597832	597856	597880	597905	597929	597954	597978	598002	598027	39	1" = 5
7075	598100	598124	598149	598173	598197	598222	598246	598270	598295	598319	38	2. 10
7368	598392	598417	598441	598465	598490	598514	598539	598563	598587	598612	37	3. 15
7660	598685	598709	598733	598758	598782	598806	598831	598855	598879	598904	36	4. 20
7952	598977	599001	599025	599050	599074	599098	599123	599147	599171	599196	35	1" = 5
8244	599268	599293	599317	599341	599366	599390	599414	599439	599463	599488	34	2. 10
8536	599560	599584	599609	599633	599657	599681	599706	599730	599754	599779	33	3. 15
8827	599851	599875	599900	599924	599948	599973	599997	600021	600045	600070	32	4. 19
9118	600142	600167	600191	600215	600239	600264	600288	600312	600336	600361	31	1" = 5
9409	600433	600458	600482	600506	600530	600554	600579	600603	600627	600651	30	2. 10
9699	600724	600748	600772	600797	600821	600845	600869	600893	600918	600942	29	3. 15
9990	601014	601039	601063	601087	601111	601135	601159	601184	601208	601232	28	4. 19
10280	601305	601329	601353	601377	601401	601425	601450	601474	601498	601522	27	1" = 5
10570	601594	601619	601643	601667	601691	601715	601739	601764	601788	601812	26	2. 10
10860	601884	601908	601933	601957	601981	602005	602029	602053	602077	602101	25	3. 14
11150	602174	602198	602222	602246	602270	602294	602318	602342	602367	602391	24	4. 19
11439	602463	602487	602511	602535	602559	602583	602607	602632	602656	602680	23	1" = 5
11728	602752	602776	602800	602824	602848	602872	602896	602920	602945	602969	22	2. 10
12017	603041	603065	603089	603113	603137	603161	603185	603209	603233	603257	21	3. 14
12306	603329	603353	603377	603401	603425	603449	603474	603498	603522	603546	20	4. 19
12594	603618	603642	603666	603690	603714	603738	603762	603786	603810	603834	19	1" = 5
12882	603906	603930	603954	603978	604002	604026	604050	604074	604098	604122	18	2. 10
13170	604194	604218	604242	604266	604290	604314	604338	604361	604385	604409	17	3. 14
13458	604481	604505	604529	604553	604577	604601	604625	604649	604673	604697	16	4. 19
13746	604769	604793	604817	604841	604865	604889	604912	604936	604960	604984	15	1" = 5
14034	605056	605080	605104	605128	605152	605176	605199	605223	605247	605271	14	2. 10
14322	605343	605367	605391	605415	605439	605462	605486	605510	605534	605558	13	3. 14
14610	605630	605654	605677	605701	605725	605749	605773	605797	605821	605845	12	4. 19
14898	605916	605940	605964	605988	606012	606036	606059	606083	606107	606131	11	1" = 5
15186	606203	606227	606250	606274	606298	606322	606346	606369	606393	606417	10	2. 10
15474	606489	606512	606536	606560	606584	606608	606632	606655	606679	606703	9	3. 14
15762	606774	606798	606822	606846	606870	606893	606917	606941	606965	606989	8	4. 19
16050	607060	607084	607108	607131	607155	607179	607203	607227	607250	607274	7	1" = 5
16338	607345	607369	607393	607417	607441	607464	607488	607512	607536	607559	6	2. 10
16626	607631	607654	607678	607702	607726	607749	607773	607797	607821	607844	5	3. 14
16914	607916	607939	607963	607987	608011	608034	608058	608082	608105	608129	4	4. 19
17202	608200	608224	608248	608271	608295	608319	608343	608366	608390	608414	3	1" = 5
17490	608485	608509	608532	608556	608580	608603	608627	608651	608674	608698	2	2. 10
17778	608769	608793	608816	608840	608864	608887	608911	608935	608958	608982	1	3. 14
18066	609053	609077	609100	609124	609148	609171	609195	609219	609242	609266	0	4. 19
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.
Co-sine of 66 degrees, or Sine of 156 degrees.												

LOGARITHMIC SINES.

Sine of 24 degrees, or Co-sine of 114 degrees.													
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes
0	9.609313	609337	609361	609384	609408	609432	609455	609479	609502	609526	609550	609573	59
1	9.609597	609621	609644	609668	609691	609715	609739	609762	609786	609810	609833	609857	58
2	9.609880	609904	609928	609951	609975	609998	610022	610046	610069	610093	610116	610140	57
3	9.610164	610187	610211	610234	610258	610282	610305	610329	610352	610376	610399	610423	56
4	9.610447	610470	610494	610517	610541	610564	610588	610612	610635	610659	610682	610706	55
5	9.610729	610753	610776	610800	610824	610847	610871	610894	610918	610941	610965	610988	54
6	9.611012	611035	611059	611082	611106	611129	611153	611177	611200	611224	611247	611271	53
7	9.611294	611318	611341	611365	611388	611412	611435	611459	611482	611506	611529	611553	52
8	9.611576	611600	611623	611647	611670	611694	611717	611741	611764	611788	611811	611835	51
9	9.611858	611882	611905	611929	611952	611975	611999	612022	612046	612069	612093	612116	50
10	9.612140	612163	612187	612210	612234	612257	612280	612304	612327	612351	612374	612398	49
11	9.612421	612445	612468	612491	612515	612538	612562	612585	612609	612632	612656	612679	48
12	9.612702	612726	612749	612773	612796	612819	612843	612866	612890	612913	612937	612960	47
13	9.612983	613007	613030	613054	613077	613100	613124	613147	613171	613194	613217	613241	46
14	9.613264	613288	613311	613334	613358	613381	613404	613428	613451	613475	613498	613521	45
15	9.613545	613568	613591	613615	613638	613662	613685	613708	613732	613755	613778	613802	44
16	9.613825	613848	613872	613895	613918	613942	613965	613988	614012	614035	614058	614082	43
17	9.614105	614128	614152	614175	614198	614222	614245	614268	614292	614315	614338	614362	42
18	9.614385	614408	614432	614455	614478	614502	614525	614548	614572	614595	614618	614641	41
19	9.614665	614688	614711	614735	614758	614781	614804	614828	614851	614875	614898	614921	40
20	9.614944	614967	614991	615014	615037	615061	615084	615107	615130	615154	615177	615200	39
21	9.615223	615247	615270	615293	615316	615340	615363	615386	615409	615433	615456	615479	38
22	9.615502	615526	615549	615572	615595	615619	615642	615665	615688	615712	615735	615758	37
23	9.615781	615805	615828	615851	615874	615897	615921	615944	615967	615990	616013	616037	36
24	9.616060	616083	616106	616130	616153	616176	616199	616222	616246	616269	616292	616315	35
25	9.616338	616361	616385	616408	616431	616454	616477	616501	616524	616547	616570	616593	34
26	9.616616	616640	616663	616686	616709	616732	616755	616779	616802	616825	616848	616871	33
27	9.616894	616918	616941	616964	616987	617010	617033	617056	617080	617103	617126	617149	32
28	9.617172	617195	617218	617242	617265	617288	617311	617334	617357	617380	617403	617427	31
29	9.617450	617473	617496	617519	617542	617565	617588	617611	617635	617658	617681	617704	30
30	9.617727	617750	617773	617796	617819	617842	617866	617889	617912	617935	617958	617981	29
31	9.618004	618027	618050	618073	618096	618120	618143	618166	618189	618212	618235	618258	28
32	9.618281	618304	618327	618350	618373	618396	618419	618442	618465	618489	618512	618535	27
33	9.618558	618581	618604	618627	618650	618673	618696	618719	618742	618765	618788	618811	26
34	9.618834	618857	618880	618903	618926	618949	618972	618995	619018	619041	619064	619087	25
35	9.619110	619133	619156	619179	619202	619225	619248	619271	619294	619317	619340	619363	24
36	9.619386	619409	619432	619455	619478	619501	619524	619547	619570	619593	619616	619639	23
37	9.619662	619685	619708	619731	619754	619777	619800	619823	619846	619869	619892	619915	22
38	9.619938	619961	619984	620007	620030	620053	620076	620099	620121	620144	620167	620190	21
39	9.620213	620236	620259	620282	620305	620328	620351	620374	620397	620420	620443	620466	20
40	9.620488	620511	620534	620557	620580	620603	620626	620649	620672	620695	620718	620741	19
41	9.620763	620786	620809	620832	620855	620878	620901	620924	620947	620970	620993	621015	18
42	9.621038	621061	621084	621107	621130	621153	621176	621199	621221	621244	621267	621290	17
43	9.621313	621336	621358	621381	621404	621427	621450	621473	621496	621519	621541	621564	16
44	9.621587	621610	621633	621656	621679	621701	621724	621747	621770	621793	621816	621838	15
45	9.621861	621884	621907	621930	621953	621975	621998	622021	622044	622067	622090	622112	14
46	9.622135	622158	622181	622204	622226	622249	622272	622295	622318	622340	622363	622386	13
47	9.622409	622432	622454	622477	622500	622523	622546	622568	622591	622614	622637	622660	12
48	9.622682	622705	622728	622751	622774	622796	622819	622842	622865	622887	622910	622933	11
49	9.622956	622978	623001	623024	623047	623070	623092	623115	623138	623161	623183	623206	10
50	9.623229	623252	623274	623297	623320	623343	623365	623388	623411	623433	623456	623479	9
51	9.623502	623524	623547	623570	623593	623615	623638	623661	623683	623706	623729	623752	8
52	9.623774	623797	623820	623842	623865	623888	623911	623933	623956	623979	624001	624024	7
53	9.624047	624070	624092	624115	624138	624160	624183	624206	624228	624251	624274	624296	6
54	9.624319	624342	624364	624387	624410	624432	624455	624478	624500	624523	624546	624568	5
55	9.624591	624614	624636	624659	624682	624704	624727	624750	624772	624795	624818	624840	4
56	9.624863	624886	624908	624931	624954	624976	624999	625021	625044	625067	625089	625112	3
57	9.625135	625157	625180	625203	625225	625248	625270	625293	625316	625338	625361	625383	2
58	9.625406	625429	625451	625474	625496	625519	625542	625564	625587	625610	625632	625655	1
59	9.625677	625700	625722	625745	625768	625790	625813	625835	625858	625881	625903	625926	0
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	
Co-sine of 65 degrees, or Sine of 155 degrees.													

LOGARITHMIC SINES.

Sine of 25 degrees, or Co-sine of 115 degrees.													Minutes	Proport. parts.
1°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
59.48	625971	625993	626016	626039	626061	626084	626106	626129	626151	626174	626197	59	1" = 5	
6219	626242	626264	626287	626309	626332	626354	626377	626400	626422	626445	626467	58	2. 9	
6490	626512	626535	626557	626580	626602	626625	626647	626670	626693	626715	626738	57	3. 14	
6760	626783	626805	626828	626850	626873	626895	626918	626940	626963	626985	627008	56	4. 18	
7030	627053	627075	627098	627120	627143	627165	627188	627210	627233	627255	627278	55	1 = 5	
7300	627323	627345	627368	627390	627413	627435	627458	627480	627503	627525	627548	54	2. 9	
7570	627593	627615	627638	627660	627682	627705	627727	627750	627772	627795	627817	53	3. 14	
7840	627862	627885	627907	627930	627952	627974	627997	628019	628042	628064	628087	52	4. 18	
8109	628132	628154	628176	628199	628221	628244	628266	628289	628311	628333	628356	51	1 = 4	
8378	628401	628423	628446	628468	628490	628513	628535	628558	628580	628602	628625	50	2. 9	
8647	628670	628692	628714	628737	628759	628782	628804	628826	628849	628871	628894	49	3. 13	
8916	628938	628961	628983	629006	629028	629050	629073	629095	629117	629140	629162	48	4. 18	
9185	629207	629229	629252	629274	629296	629319	629341	629364	629386	629408	629431	47	1 = 4	
9453	629475	629498	629520	629542	629565	629587	629609	629632	629654	629676	629699	46	2. 9	
9721	629743	629766	629788	629810	629833	629855	629877	629900	629922	629944	629967	45	3. 13	
9989	630011	630034	630056	630078	630101	630123	630145	630168	630190	630212	630235	44	4. 18	
0257	630279	630301	630324	630346	630368	630391	630413	630435	630458	630480	630502	43	1 = 4	
0524	630547	630569	630591	630614	630636	630658	630680	630703	630725	630747	630769	42	2. 9	
0792	630814	630836	630858	630881	630903	630925	630948	630970	630992	631014	631037	41	3. 13	
1059	631081	631103	631126	631148	631170	631192	631215	631237	631259	631281	631304	40	4. 18	
1326	631348	631370	631393	631415	631437	631459	631481	631504	631526	631548	631570	39	1 = 4	
1593	631615	631637	631659	631681	631704	631726	631748	631770	631793	631815	631837	38	2. 9	
1859	631881	631904	631926	631948	631970	631992	632015	632037	632059	632081	632103	37	3. 13	
2126	632148	632170	632193	632214	632236	632259	632281	632303	632325	632347	632369	36	4. 18	
2392	632414	632436	632458	632480	632503	632525	632547	632569	632591	632613	632635	35	1 = 4	
2658	632680	632702	632724	632746	632768	632791	632813	632835	632857	632879	632901	34	2. 9	
2923	632946	632968	632990	633012	633034	633056	633078	633100	633123	633145	633167	33	3. 13	
3189	633211	633233	633255	633277	633300	633322	633344	633366	633388	633410	633432	32	4. 18	
3454	633470	633492	633514	633536	633558	633580	633602	633624	633646	633668	633690	31	1 = 4	
3719	633742	633764	633786	633808	633830	633852	633874	633896	633918	633940	633962	30	2. 9	
3984	634000	634022	634044	634066	634088	634110	634132	634154	634176	634198	634220	29	3. 13	
4249	634271	634293	634315	634337	634359	634381	634403	634425	634447	634469	634491	28	4. 18	
4514	634536	634558	634580	634602	634624	634646	634668	634690	634712	634734	634756	27	1 = 4	
4778	634800	634822	634844	634866	634888	634910	634932	634954	634976	634998	635020	26	2. 9	
5043	635064	635086	635108	635130	635152	635174	635196	635218	635240	635262	635284	25	3. 13	
5306	635328	635350	635372	635394	635416	635438	635460	635482	635504	635526	635548	24	4. 18	
5570	635592	635614	635636	635658	635680	635702	635724	635746	635768	635790	635812	23	1 = 4	
5834	635856	635877	635899	635921	635943	635965	635987	636009	636031	636053	636075	22	2. 9	
6097	636119	636141	636163	636185	636207	636229	636250	636272	636294	636316	636338	21	3. 13	
6360	636382	636404	636426	636448	636470	636492	636514	636535	636557	636579	636601	20	4. 18	
6623	636645	636667	636689	636711	636733	636755	636776	636798	636820	636842	636864	19	1 = 4	
6886	636908	636930	636952	636973	636995	637017	637039	637061	637083	637105	637127	18	2. 9	
7148	637170	637192	637214	637236	637258	637280	637302	637323	637345	637367	637389	17	3. 13	
7411	637433	637455	637476	637498	637520	637542	637564	637586	637608	637629	637651	16	4. 17	
7673	637695	637717	637739	637760	637782	637804	637826	637848	637870	637891	637913	15	1 = 4	
7935	637957	637979	638001	638022	638044	638066	638088	638110	638131	638153	638175	14	2. 9	
8197	638219	638241	638262	638284	638306	638328	638350	638371	638393	638415	638437	13	3. 13	
8459	638480	638502	638524	638546	638567	638589	638611	638633	638655	638676	638698	12	4. 17	
8720	638742	638764	638785	638807	638829	638851	638872	638894	638916	638938	638959	11	1 = 4	
8981	639003	639025	639046	639068	639090	639112	639133	639155	639177	639199	639220	10	2. 9	
9242	639264	639286	639307	639329	639351	639373	639394	639416	639438	639460	639481	9	3. 13	
9503	639525	639547	639568	639590	639612	639633	639655	639677	639699	639720	639742	8	4. 17	
9764	639785	639807	639829	639851	639872	639894	639916	639937	639959	639981	640002	7	1 = 4	
0024	640046	640068	640089	640111	640133	640154	640176	640198	640219	640241	640263	6	2. 9	
0284	640306	640328	640349	640371	640393	640415	640436	640458	640480	640501	640523	5	3. 13	
0545	640566	640588	640610	640631	640653	640674	640696	640718	640739	640761	640783	4	4. 17	
0804	640826	640848	640869	640891	640913	640934	640956	640978	640999	641021	641042	3	1 = 4	
1064	641086	641107	641129	641151	641172	641194	641215	641237	641259	641280	641302	2	2. 9	
1324	641345	641367	641388	641410	641432	641453	641475	641496	641518	641540	641561	1	3. 13	
1583	641604	641626	641648	641669	641691	641712	641734	641756	641777	641799	641820	0	4. 17	
0	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'		Minutes	Proport. parts.
Co-sine of 64 degrees, or Sine of 154 degrees.														

LOGARITHMIC SINES.

Sine of 26 degrees, or Co-sine of 116 degrees.														Minutes	Proportional parts.
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
0	9.641842	641864	641885	641907	641928	641950	641971	641993	642015	642036	642058	642079	59	1" = 4	
1	9.642101	642123	642144	642166	642187	642209	642230	642252	642273	642295	642317	642338	58	2. 9	
2	9.642360	642381	642403	642424	642446	642467	642489	642511	642532	642554	642575	642597	57	3. 13	
3	9.642618	642640	642661	642683	642704	642726	642747	642769	642790	642812	642834	642855	56	4. 17	
4	9.642877	642898	642920	642941	642963	642984	643006	643027	643049	643070	643092	643113	55	1 = 4	
5	9.643135	643156	643178	643199	643221	643242	643264	643285	643307	643328	643350	643371	54	2. 9	
6	9.643393	643414	643436	643457	643479	643500	643522	643543	643565	643586	643608	643629	53	3. 13	
7	9.643650	643672	643693	643715	643736	643758	643779	643801	643822	643844	643865	643887	52	4. 17	
8	9.643908	643930	643951	643972	643994	644015	644037	644058	644080	644101	644123	644144	51	1 = 4	
9	9.644165	644187	644208	644230	644251	644273	644294	644316	644337	644358	644380	644401	50	2. 9	
10	9.644423	644444	644466	644487	644508	644530	644551	644573	644594	644615	644637	644658	49	3. 13	
11	9.644680	644701	644723	644744	644765	644787	644808	644830	644851	644872	644894	644915	48	4. 17	
12	9.644937	644958	644979	645001	645022	645043	645065	645086	645108	645129	645150	645172	47	1 = 4	
13	9.645193	645215	645236	645257	645279	645300	645321	645343	645364	645386	645407	645428	46	2. 9	
14	9.645450	645471	645492	645514	645535	645556	645578	645599	645620	645642	645663	645685	45	3. 13	
15	9.645706	645727	645749	645770	645791	645813	645834	645855	645877	645898	645919	645941	44	4. 17	
16	9.645962	645983	646005	646026	646047	646069	646090	646111	646133	646154	646175	646197	43	1 = 4	
17	9.646218	646239	646260	646282	646303	646324	646346	646367	646388	646410	646431	646452	42	2. 9	
18	9.646474	646495	646516	646537	646559	646580	646601	646623	646644	646665	646687	646708	41	3. 13	
19	9.646729	646750	646772	646793	646814	646835	646857	646878	646899	646921	646942	646963	40	4. 17	
20	9.646984	647006	647027	647048	647069	647091	647112	647133	647155	647176	647197	647218	39	1 = 4	
21	9.647240	647261	647282	647303	647325	647346	647367	647388	647410	647431	647452	647473	38	2. 9	
22	9.647495	647516	647537	647558	647579	647601	647622	647643	647664	647686	647707	647728	37	3. 13	
23	9.647750	647771	647792	647813	647834	647855	647877	647898	647919	647940	647961	647983	36	4. 17	
24	9.648004	648025	648046	648067	648089	648110	648131	648152	648173	648195	648216	648237	35	1 = 4	
25	9.648258	648279	648301	648322	648343	648364	648385	648407	648428	648449	648470	648491	34	2. 9	
26	9.648512	648533	648555	648576	648597	648618	648640	648661	648682	648703	648724	648745	33	3. 13	
27	9.648767	648788	648809	648830	648851	648872	648893	648915	648936	648957	648978	648999	32	4. 17	
28	9.649020	649042	649063	649084	649105	649126	649147	649168	649189	649211	649232	649253	31	1 = 4	
29	9.649274	649295	649316	649337	649359	649380	649401	649422	649443	649464	649485	649506	30	2. 9	
30	9.649527	649549	649570	649591	649612	649633	649654	649675	649696	649717	649739	649760	29	3. 13	
31	9.649781	649802	649823	649844	649865	649886	649907	649928	649950	649971	649992	650013	28	4. 17	
32	9.650034	650055	650076	650097	650118	650139	650160	650181	650202	650224	650245	650266	27	1 = 4	
33	9.650287	650308	650329	650350	650371	650392	650413	650434	650455	650476	650497	650518	26	2. 9	
34	9.650540	650561	650582	650603	650624	650645	650666	650687	650708	650729	650750	650771	25	3. 13	
35	9.650792	650813	650834	650855	650876	650897	650918	650939	650960	650981	651002	651023	24	4. 17	
36	9.651044	651065	651086	651107	651129	651150	651171	651192	651213	651234	651255	651276	23	1 = 4	
37	9.651297	651318	651339	651360	651381	651402	651423	651444	651465	651486	651507	651528	22	2. 9	
38	9.651549	651570	651591	651612	651633	651654	651675	651696	651717	651738	651759	651779	21	3. 13	
39	9.651800	651821	651842	651863	651884	651905	651926	651947	651968	651989	652010	652031	20	4. 17	
40	9.652052	652073	652094	652115	652136	652157	652178	652199	652220	652241	652262	652283	19	1 = 4	
41	9.652304	652325	652345	652366	652387	652408	652429	652450	652471	652492	652513	652534	18	2. 9	
42	9.652555	652576	652597	652618	652639	652659	652680	652701	652722	652743	652764	652785	17	3. 13	
43	9.652806	652827	652848	652869	652890	652910	652931	652952	652973	652994	653015	653036	16	4. 17	
44	9.653057	653078	653099	653120	653140	653161	653182	653203	653224	653245	653266	653287	15	1 = 4	
45	9.653308	653328	653349	653370	653391	653412	653433	653454	653475	653495	653516	653537	14	2. 9	
46	9.653558	653579	653600	653621	653642	653662	653683	653704	653725	653746	653767	653788	13	3. 13	
47	9.653808	653829	653850	653871	653892	653913	653934	653954	653975	653996	654017	654038	12	4. 17	
48	9.654059	654079	654100	654121	654142	654163	654184	654205	654225	654246	654267	654288	11	1 = 4	
49	9.654309	654329	654350	654371	654392	654413	654434	654454	654475	654496	654517	654538	10	2. 9	
50	9.654558	654579	654600	654621	654642	654663	654683	654704	654725	654746	654767	654787	9	3. 13	
51	9.654808	654829	654850	654871	654891	654912	654933	654954	654974	654995	655016	655037	8	4. 17	
52	9.655058	655078	655099	655120	655141	655161	655182	655203	655224	655245	655265	655286	7	1 = 4	
53	9.655307	655328	655348	655369	655390	655411	655431	655452	655473	655494	655514	655535	6	2. 9	
54	9.655556	655577	655597	655618	655639	655660	655680	655701	655722	655743	655763	655784	5	3. 13	
55	9.655805	655826	655846	655867	655888	655909	655929	655950	655971	655991	656012	656033	4	4. 17	
56	9.656054	656074	656095	656116	656137	656157	656178	656199	656219	656240	656261	656281	3	1 = 4	
57	9.656302	656323	656344	656364	656385	656406	656426	656447	656468	656489	656509	656530	2	2. 9	
58	9.656551	656571	656592	656613	656633	656654	656675	656695	656716	656737	656757	656778	1	3. 13	
59	9.656799	656819	656840	656861	656881	656902	656923	656943	656964	656985	657005	657026	0	4. 17	
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proportional parts.	
Co-sine of 63 degrees, or Sine of 153 degrees.															

LOGARITHMIC SINES.

Sine of 27 degrees, or Co-sine of 117 degrees.												Minutes	Proper parts.
°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
7047	657067	657088	657109	657129	657150	657171	657191	657212	657233	657253	657274	59	1" = 4
7295	657315	657336	657357	657377	657398	657419	657439	657460	657480	657501	657522	58	2. 8
7542	657563	657584	657604	657625	657645	657666	657687	657707	657728	657749	657769	57	3. 12
7790	657810	657831	657852	657872	657893	657914	657934	657955	657975	657996	658016	56	4. 16
8037	658078	658098	658119	658140	658160	658181	658201	658222	658243	658264	658284	55	1 = 4
8284	658305	658325	658346	658366	658387	658408	658428	658449	658470	658490	658511	54	2. 8
8531	658552	658572	658593	658614	658634	658655	658675	658696	658717	658737	658757	53	3. 12
8778	658799	658819	658840	658860	658881	658901	658922	658942	658963	658984	659004	52	4. 16
9025	659045	659066	659086	659107	659127	659148	659168	659189	659209	659230	659251	51	1 = 4
9271	659292	659312	659333	659353	659374	659394	659415	659435	659456	659476	659497	50	2. 8
9517	659538	659558	659579	659599	659620	659640	659661	659681	659702	659722	659743	49	3. 12
9763	659784	659804	659825	659845	659866	659886	659907	659927	659948	659968	659989	48	4. 16
3009	660030	660050	660071	660091	660112	660132	660153	660173	660194	660214	660235	47	1 = 4
3255	660275	660296	660316	660337	660357	660378	660398	660419	660439	660460	660480	46	2. 8
3501	660521	660541	660562	660582	660603	660623	660644	660664	660685	660705	660726	45	3. 12
3746	660766	660787	660807	660828	660848	660869	660889	660909	660930	660950	660971	44	4. 16
3991	661012	661032	661053	661073	661093	661114	661134	661155	661175	661195	661216	43	1 = 4
4236	661257	661277	661297	661318	661338	661359	661379	661399	661420	661440	661461	42	2. 8
4481	661501	661522	661542	661563	661583	661603	661624	661644	661665	661685	661705	41	3. 12
4726	661746	661766	661787	661807	661828	661848	661868	661889	661909	661929	661950	40	4. 16
4970	661991	662011	662031	662052	662072	662092	662113	662133	662153	662174	662194	39	1 = 4
5215	662235	662255	662276	662296	662316	662337	662357	662377	662398	662418	662438	38	2. 8
5459	662479	662499	662520	662540	662560	662581	662601	662621	662642	662662	662682	37	3. 12
5703	662723	662743	662764	662784	662804	662825	662845	662865	662886	662906	662926	36	4. 16
5948	662967	662987	663007	663028	663048	663068	663089	663109	663129	663149	663170	35	1 = 4
6190	663210	663231	663251	663271	663292	663312	663332	663353	663373	663393	663413	34	2. 8
6434	663454	663474	663494	663515	663535	663555	663575	663596	663616	663636	663657	33	3. 12
6679	663697	663717	663738	663758	663778	663798	663819	663839	663859	663879	663900	32	4. 16
6920	663940	663960	663981	664001	664021	664042	664062	664082	664102	664122	664143	31	1 = 4
7163	664183	664203	664224	664244	664264	664284	664305	664325	664345	664365	664385	30	2. 8
7406	664426	664446	664466	664487	664507	664527	664547	664567	664588	664608	664628	29	3. 12
7648	664668	664688	664709	664729	664749	664769	664790	664810	664830	664850	664870	28	4. 16
7891	664911	664931	664951	664971	664992	665012	665032	665052	665072	665093	665113	27	1 = 4
8133	665155	665175	665195	665215	665236	665256	665276	665296	665316	665337	665357	26	2. 8
8375	665395	665415	665435	665455	665476	665496	665516	665536	665556	665577	665597	25	3. 12
8617	665637	665657	665677	665697	665718	665738	665758	665778	665798	665818	665838	24	4. 16
8859	665879	665899	665919	665939	665959	665979	666000	666020	666040	666060	666080	23	1 = 4
9100	666120	666140	666160	666181	666201	666221	666241	666261	666281	666301	666321	22	2. 8
9342	666362	666382	666402	666422	666442	666462	666482	666502	666522	666543	666563	21	3. 12
9583	666603	666623	666643	666663	666683	666703	666723	666744	666764	666784	666804	20	4. 16
9824	666844	666864	666884	666904	666924	666944	666964	666984	667005	667025	667045	19	1 = 4
10065	667085	667105	667125	667145	667165	667185	667205	667225	667245	667265	667285	18	2. 8
10305	667326	667346	667366	667386	667406	667426	667446	667466	667486	667506	667526	17	3. 12
10546	667567	667586	667606	667626	667646	667666	667686	667706	667726	667746	667766	16	4. 16
786	667806	667826	667846	667866	667886	667906	667927	667947	667967	667987	668007	15	1 = 4
227	668047	668067	668087	668107	668127	668147	668167	668187	668207	668227	668247	14	2. 8
267	668287	668307	668327	668347	668367	668387	668407	668427	668447	668466	668486	13	3. 12
306	668526	668546	668566	668586	668606	668626	668646	668666	668686	668706	668726	12	4. 16
346	668766	668786	668806	668826	668846	668866	668886	668906	668926	668946	668966	11	1 = 4
386	669006	669026	669046	669066	669086	669106	669126	669145	669165	669185	669205	10	2. 8
425	669245	669265	669285	669305	669325	669345	669365	669385	669404	669424	669444	9	3. 12
464	669484	669504	669524	669544	669564	669584	669604	669624	669643	669663	669683	8	4. 16
503	669723	669743	669763	669783	669803	669823	669843	669862	669882	669902	669922	7	1 = 4
542	669962	669982	670002	670022	670042	670061	670081	670101	670121	670141	670161	6	2. 8
581	670201	670221	670240	670260	670280	670300	670320	670340	670360	670380	670399	5	3. 12
619	670439	670459	670479	670499	670519	670538	670558	670578	670598	670618	670638	4	4. 16
658	670677	670697	670717	670737	670757	670777	670797	670816	670836	670856	670876	3	1 = 4
696	670916	670935	670955	670975	670995	671015	671035	671054	671074	671094	671114	2	2. 8
734	671154	671173	671193	671213	671233	671253	671273	671292	671312	671332	671352	1	3. 12
772	671391	671411	671431	671451	671471	671491	671510	671530	671550	671570	671590	0	4. 16
°	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proper parts.
Co-sine of 62 degrees, or Sine of 152 degrees.													

LOGARITHMIC SINES.

Sine of 28 degrees, or Co-sine of 118 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proper parts
0	9. 671609	671629	671649	671669	671689	671708	671728	671748	671768	671787	671807	671827	59	1° = 2
1	9. 671847	671867	671886	671906	671926	671946	671966	671985	672005	672025	672045	672064	58	2. 8
2	9. 672084	672104	672124	672144	672163	672183	672203	672223	672242	672262	672282	672302	57	3. 13
3	9. 672321	672341	672361	672381	672400	672420	672440	672460	672479	672499	672519	672539	56	4. 16
4	9. 672558	672578	672598	672618	672637	672657	672677	672696	672716	672736	672756	672776	55	1 = 4
5	9. 672795	672815	672835	672854	672874	672894	672914	672933	672953	672973	672993	673012	54	2. 8
6	9. 673032	673052	673071	673091	673111	673130	673150	673170	673190	673209	673229	673249	53	3. 13
7	9. 673268	673288	673308	673328	673347	673367	673387	673406	673426	673446	673465	673485	52	4. 16
8	9. 673505	673524	673544	673564	673584	673603	673623	673643	673662	673682	673702	673721	51	1 = 4
9	9. 673741	673761	673780	673800	673820	673839	673859	673879	673898	673918	673938	673957	50	2. 8
10	9. 673977	673997	674016	674036	674056	674075	674095	674115	674134	674154	674174	674193	49	3. 13
11	9. 674213	674232	674252	674272	674291	674311	674331	674350	674370	674390	674409	674429	48	4. 16
12	9. 674449	674468	674488	674507	674527	674547	674566	674586	674606	674625	674645	674664	47	1 = 4
13	9. 674684	674704	674723	674743	674763	674782	674802	674821	674841	674861	674880	674900	46	2. 8
14	9. 674919	674939	674959	674978	674998	675017	675037	675057	675076	675096	675115	675135	45	3. 13
15	9. 675155	675174	675194	675213	675233	675253	675272	675292	675311	675331	675350	675370	44	4. 16
16	9. 675390	675409	675429	675448	675468	675488	675507	675527	675546	675566	675585	675605	43	1 = 4
17	9. 675625	675644	675664	675683	675703	675722	675742	675761	675781	675801	675820	675840	42	2. 8
18	9. 675859	675879	675898	675918	675937	675957	675976	675996	676016	676035	676055	676074	41	3. 13
19	9. 676094	676113	676133	676152	676172	676191	676211	676230	676250	676269	676289	676309	40	4. 16
20	9. 676328	676348	676367	676387	676406	676426	676445	676465	676484	676504	676523	676543	39	1 = 4
21	9. 676562	676582	676601	676621	676640	676660	676679	676699	676718	676738	676757	676777	38	2. 8
22	9. 676796	676816	676835	676855	676874	676894	676913	676933	676952	676972	676991	677011	37	3. 13
23	9. 677030	677050	677069	677089	677108	677128	677147	677167	677186	677206	677225	677245	36	4. 16
24	9. 677264	677283	677303	677322	677342	677361	677381	677400	677420	677439	677459	677478	35	1 = 4
25	9. 677498	677517	677536	677556	677575	677595	677614	677634	677653	677673	677692	677712	34	2. 8
26	9. 677731	677750	677770	677789	677809	677828	677848	677867	677886	677906	677925	677945	33	3. 13
27	9. 677964	677984	678003	678022	678042	678061	678081	678100	678120	678139	678158	678178	32	4. 16
28	9. 678197	678217	678236	678256	678275	678294	678314	678333	678353	678372	678391	678411	31	1 = 4
29	9. 678430	678450	678469	678488	678508	678527	678547	678566	678585	678605	678624	678644	30	2. 8
30	9. 678663	678682	678702	678721	678741	678760	678779	678799	678818	678837	678857	678876	29	3. 13
31	9. 678896	678915	678934	678954	678973	678992	679012	679031	679051	679070	679089	679109	28	4. 16
32	9. 679128	679147	679167	679186	679205	679225	679244	679263	679283	679302	679322	679341	27	1 = 4
33	9. 679360	679380	679399	679418	679438	679457	679476	679496	679515	679534	679554	679573	26	2. 8
34	9. 679592	679612	679631	679650	679670	679689	679708	679728	679747	679766	679786	679805	25	3. 13
35	9. 679824	679844	679863	679882	679902	679921	679940	679960	679979	679998	680017	680037	24	4. 16
36	9. 680056	680075	680095	680114	680133	680153	680172	680191	680211	680230	680249	680268	23	1 = 4
37	9. 680288	680307	680326	680346	680365	680384	680403	680423	680442	680461	680481	680500	22	2. 8
38	9. 680519	680538	680558	680577	680596	680616	680635	680654	680673	680693	680712	680731	21	3. 13
39	9. 680750	680770	680789	680808	680828	680847	680866	680885	680905	680924	680943	680962	20	4. 16
40	9. 680982	681001	681020	681039	681059	681078	681097	681116	681136	681155	681174	681193	19	1 = 4
41	9. 681213	681232	681251	681270	681290	681309	681328	681347	681367	681386	681405	681424	18	2. 8
42	9. 681443	681463	681482	681501	681520	681540	681559	681578	681597	681616	681636	681655	17	3. 13
43	9. 681674	681693	681713	681732	681751	681770	681789	681809	681828	681847	681866	681885	16	4. 16
44	9. 681905	681924	681943	681962	681981	682001	682020	682039	682058	682077	682097	682116	15	1 = 4
45	9. 682135	682154	682173	682193	682212	682231	682250	682269	682288	682308	682327	682346	14	2. 8
46	9. 682365	682384	682404	682423	682442	682461	682480	682499	682519	682538	682557	682576	13	3. 13
47	9. 682595	682614	682634	682653	682672	682691	682710	682729	682748	682768	682787	682806	12	4. 16
48	9. 682825	682844	682863	682883	682902	682921	682940	682959	682978	682997	683017	683036	11	1 = 4
49	9. 683055	683074	683093	683112	683131	683150	683170	683189	683208	683227	683246	683265	10	2. 8
50	9. 683284	683303	683323	683342	683361	683380	683399	683418	683437	683456	683476	683495	9	3. 13
51	9. 683514	683533	683552	683571	683590	683609	683628	683648	683667	683686	683705	683724	8	4. 16
52	9. 683743	683762	683781	683800	683819	683838	683857	683877	683896	683915	683934	683953	7	1 = 4
53	9. 683972	683991	684010	684029	684048	684067	684087	684106	684125	684144	684163	684182	6	2. 8
54	9. 684201	684220	684239	684258	684277	684296	684315	684334	684354	684373	684392	684411	5	3. 13
55	9. 684430	684449	684468	684487	684506	684525	684544	684563	684582	684601	684620	684639	4	4. 16
56	9. 684658	684677	684696	684716	684735	684754	684773	684792	684811	684830	684849	684868	3	1 = 4
57	9. 684887	684906	684925	684944	684963	684982	685001	685020	685039	685058	685077	685096	2	2. 8
58	9. 685115	685134	685153	685172	685191	685210	685229	685248	685267	685286	685305	685324	1	3. 13
59	9. 685343	685362	685381	685400	685419	685438	685457	685476	685495	685514	685533	685552	0	4. 16
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proper parts
Co-sine of 61 degrees, or Sine of 151 degrees.														

LOGARITHMIC SINES.

Sine of 29 degrees, or Co-sine of 119 degrees.												Minutes	Proport. parts.
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
71	685590	685609	685628	685647	685666	685685	685704	685723	685742	685761	685780	58	1" = 4
99	685818	685837	685856	685875	685894	685913	685932	685951	685970	685989	686008	59	2. 8
27	686046	686065	686084	686103	686122	686141	686160	686178	686197	686216	686235	57	3. 11
54	686273	686292	686311	686330	686349	686368	686387	686406	686425	686444	686463	56	4. 15
82	686501	686520	686538	686557	686576	686595	686614	686633	686652	686671	686690	55	1 = 4
09	686728	686747	686766	686785	686803	686822	686841	686860	686879	686898	686917	54	2. 8
36	686955	686974	686993	687012	687030	687049	687068	687087	687106	687125	687144	53	3. 11
63	687182	687201	687220	687238	687257	687276	687295	687314	687333	687352	687371	52	4. 15
90	687408	687427	687446	687465	687484	687503	687522	687541	687560	687578	687597	51	1 = 4
16	687635	687654	687673	687692	687710	687729	687748	687767	687786	687805	687824	50	2. 8
43	687861	687880	687899	687918	687937	687956	687975	687993	688012	688031	688050	49	3. 11
69	688088	688107	688125	688144	688163	688182	688201	688220	688238	688257	688276	48	4. 15
95	688314	688333	688351	688370	688389	688408	688427	688446	688464	688483	688502	47	1 = 4
21	688540	688559	688577	688596	688615	688634	688653	688671	688690	688709	688728	46	2. 8
47	688766	688784	688803	688822	688841	688860	688878	688897	688916	688935	688954	45	3. 11
72	688991	689010	689029	689048	689066	689085	689104	689123	689142	689160	689179	44	4. 15
98	689217	689235	689254	689273	689292	689311	689330	689348	689367	689386	689404	43	1 = 4
23	689442	689461	689480	689498	689517	689536	689555	689573	689592	689611	689630	42	2. 8
48	689667	689686	689705	689723	689742	689761	689780	689798	689817	689836	689855	41	3. 11
73	689892	689911	689930	689948	689967	689986	690005	690023	690042	690061	690080	40	4. 15
98	690117	690136	690155	690173	690192	690211	690229	690248	690267	690286	690304	39	1 = 4
23	690342	690361	690379	690398	690417	690435	690454	690473	690492	690510	690529	38	2. 8
48	690566	690585	690604	690623	690641	690660	690679	690697	690716	690735	690753	37	3. 11
72	690791	690810	690828	690847	690866	690884	690903	690922	690940	690959	690978	36	4. 15
96	691015	691034	691052	691071	691090	691108	691127	691146	691165	691183	691202	35	1 = 4
21	691239	691258	691277	691295	691314	691333	691351	691370	691389	691407	691426	34	2. 8
45	691463	691482	691500	691519	691538	691556	691575	691594	691612	691631	691650	33	3. 11
68	691687	691706	691724	691743	691762	691780	691799	691817	691836	691855	691873	32	4. 15
92	691911	691929	691948	691967	691985	692004	692022	692041	692060	692078	692097	31	1 = 4
16	692134	692153	692171	692190	692209	692227	692246	692264	692283	692302	692320	30	2. 8
39	692357	692376	692395	692413	692432	692450	692469	692488	692506	692525	692543	29	3. 11
62	692581	692599	692618	692636	692655	692674	692692	692711	692729	692748	692767	28	4. 15
85	692804	692822	692841	692859	692878	692897	692915	692934	692952	692971	692989	27	1 = 4
08	693027	693045	693064	693082	693101	693119	693138	693157	693175	693194	693212	26	2. 8
31	693249	693268	693286	693305	693324	693342	693361	693379	693398	693416	693435	25	3. 11
53	693472	693491	693509	693528	693546	693565	693583	693602	693620	693639	693657	24	4. 15
76	693694	693713	693731	693750	693769	693787	693806	693824	693843	693861	693880	23	1 = 4
98	693917	693935	693954	693972	693991	694009	694028	694046	694065	694083	694102	22	2. 8
20	694139	694157	694176	694194	694213	694231	694250	694268	694287	694305	694324	21	3. 11
42	694361	694379	694398	694416	694435	694453	694472	694490	694509	694527	694546	20	4. 15
64	694583	694601	694620	694638	694657	694675	694694	694712	694731	694749	694767	19	1 = 4
86	694804	694823	694841	694860	694878	694897	694915	694934	694952	694971	694989	18	2. 8
09	695026	695044	695063	695081	695100	695118	695137	695155	695174	695192	695210	17	3. 11
29	695247	695266	695284	695303	695321	695340	695358	695376	695395	695413	695432	16	4. 15
50	695469	695487	695505	695524	695542	695561	695579	695598	695616	695634	695653	15	1 = 4
71	695690	695708	695727	695745	695763	695782	695800	695819	695837	695855	695874	14	2. 8
92	695901	695920	695947	695966	695984	696003	696021	696040	696058	696076	696095	13	3. 11
13	696131	696150	696168	696187	696205	696223	696242	696260	696279	696297	696315	12	4. 15
34	696352	696370	696389	696407	696426	696444	696463	696481	696499	696517	696536	11	1 = 4
54	696573	696591	696609	696628	696646	696664	696683	696701	696719	696738	696756	10	2. 8
75	696793	696811	696830	696848	696866	696885	696903	696921	696940	696958	696976	9	3. 11
95	697013	697031	697050	697068	697086	697105	697123	697142	697160	697178	697197	8	4. 15
115	697237	697255	697273	697292	697310	697328	697347	697365	697384	697402	697421	7	1 = 4
135	697453	697471	697490	697508	697526	697545	697563	697581	697600	697618	697636	6	2. 8
155	697673	697691	697709	697728	697746	697764	697783	697801	697819	697838	697856	5	3. 11
174	697892	697911	697929	697947	697966	697984	698002	698020	698039	698057	698075	4	4. 15
194	698111	698130	698148	698167	698185	698203	698222	698240	698258	698276	698295	3	1 = 4
113	698331	698349	698368	698386	698404	698423	698441	698459	698477	698496	698514	2	2. 8
133	698550	698569	698587	698605	698623	698642	698660	698678	698696	698715	698733	1	3. 11
151	698769	698788	698806	698824	698842	698861	698879	698897	698915	698934	698952	0	4. 15
	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-sine of 60 degrees, or Sine of 150 degrees													

LOGARITHMIC SINES.

Sine of 30 degrees, or Co-sine of 120 degrees.														Minutes	Proport. parts.
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes	Proport. parts.	
0	9.698970	698988	699007	699025	699043	699061	699079	699098	699116	699134	699152	699171	59	1" =	
1	9.699189	699207	699225	699243	699262	699280	699298	699316	699335	699353	699371	699389	58	2. "	
2	9.699407	699426	699444	699462	699480	699498	699517	699535	699553	699571	699589	699608	57	3. "	
3	9.699626	699644	699662	699680	699699	699717	699735	699753	699771	699790	699808	699826	56	4. "	
4	9.699844	699862	699880	699899	699917	699935	699953	699971	699990	700008	700026	700044	55	1 = +	
5	9.700062	700080	700099	700117	700135	700153	700171	700189	700208	700226	700244	700262	54	2. "	
6	9.700280	700298	700317	700335	700353	700371	700389	700407	700426	700444	700462	700480	53	3. "	
7	9.700498	700516	700534	700553	700571	700589	700607	700625	700643	700661	700680	700698	52	4. "	
8	9.700716	700734	700752	700770	700788	700807	700825	700843	700861	700879	700897	700915	51	1 = +	
9	9.700933	700952	700970	700988	701006	701024	701042	701060	701078	701097	701115	701133	50	2. "	
10	9.701151	701169	701187	701205	701223	701241	701260	701278	701296	701314	701332	701350	49	3. "	
11	9.701368	701386	701404	701422	701441	701459	701477	701495	701513	701531	701549	701567	48	4. "	
12	9.701585	701603	701621	701640	701658	701676	701694	701712	701730	701748	701766	701784	47	1 = +	
13	9.701802	701820	701838	701856	701875	701893	701911	701929	701947	701965	701983	702001	46	2. "	
14	9.702019	702037	702055	702073	702091	702109	702127	702146	702164	702182	702200	702218	45	3. "	
15	9.702236	702254	702272	702290	702308	702326	702344	702362	702380	702398	702416	702434	44	4. "	
16	9.702454	702472	702488	702506	702524	702543	702561	702579	702597	702615	702633	702651	43	1 = +	
17	9.702669	702687	702705	702723	702741	702759	702777	702795	702813	702831	702849	702867	42	2. "	
18	9.702885	702903	702921	702939	702957	702975	702993	703011	703029	703047	703065	703083	41	3. "	
19	9.703101	703119	703137	703155	703173	703191	703209	703227	703245	703263	703281	703299	40	4. "	
20	9.703317	703335	703353	703371	703389	703407	703425	703443	703461	703479	703497	703515	39	1 = +	
21	9.703533	703551	703569	703587	703605	703623	703641	703659	703677	703695	703713	703731	38	2. "	
22	9.703749	703767	703785	703803	703820	703838	703856	703874	703892	703910	703928	703946	37	3. "	
23	9.703964	703982	704000	704018	704036	704054	704072	704090	704108	704126	704144	704162	36	4. "	
24	9.704180	704197	704215	704233	704251	704269	704287	704305	704323	704341	704359	704377	35	1 = +	
25	9.704395	704413	704431	704449	704467	704484	704502	704520	704538	704556	704574	704592	34	2. "	
26	9.704610	704628	704646	704664	704682	704699	704717	704735	704753	704771	704789	704807	33	3. "	
27	9.704825	704843	704861	704879	704897	704914	704932	704950	704968	704986	705004	705022	32	4. "	
28	9.705040	705058	705075	705093	705111	705129	705147	705165	705183	705201	705219	705237	31	1 = +	
29	9.705256	705272	705290	705308	705326	705344	705362	705380	705397	705415	705433	705451	30	2. "	
30	9.705469	705487	705505	705523	705540	705558	705576	705594	705612	705630	705648	705665	29	3. "	
31	9.705683	705701	705719	705737	705755	705773	705790	705808	705826	705844	705862	705880	28	4. "	
32	9.705898	705915	705933	705951	705969	705987	706005	706022	706040	706058	706076	706094	27	1 = +	
33	9.706112	706130	706147	706165	706183	706201	706219	706237	706254	706272	706290	706308	26	2. "	
34	9.706326	706343	706361	706379	706397	706415	706433	706450	706468	706486	706504	706522	25	3. "	
35	9.706539	706557	706575	706593	706611	706629	706646	706664	706682	706700	706718	706735	24	4. "	
36	9.706753	706771	706789	706807	706824	706842	706860	706878	706896	706913	706931	706949	23	1 = +	
37	9.706967	706985	706999	707020	707038	707056	707073	707091	707109	707127	707145	707162	22	2. "	
38	9.707180	707198	707216	707233	707251	707269	707287	707305	707322	707340	707358	707376	21	3. "	
39	9.707393	707411	707429	707447	707464	707482	707500	707518	707535	707553	707571	707589	20	4. "	
40	9.707606	707624	707642	707660	707678	707695	707713	707731	707748	707766	707784	707802	19	1 = +	
41	9.707819	707837	707855	707873	707890	707908	707926	707944	707961	707979	707997	708015	18	2. "	
42	9.708032	708050	708068	708085	708103	708121	708139	708156	708174	708192	708210	708227	17	3. "	
43	9.708245	708263	708280	708298	708316	708334	708351	708369	708387	708404	708422	708440	16	4. "	
44	9.708458	708475	708493	708511	708528	708546	708564	708581	708599	708617	708635	708652	15	1 = +	
45	9.708670	708688	708705	708723	708741	708758	708776	708794	708812	708829	708847	708865	14	2. "	
46	9.708882	708900	708918	708935	708953	708971	708988	709006	709024	709041	709059	709077	13	3. "	
47	9.709094	709112	709130	709147	709165	709183	709200	709218	709236	709253	709271	709289	12	4. "	
48	9.709306	709324	709342	709359	709377	709395	709412	709430	709448	709465	709483	709501	11	1 = +	
49	9.709518	709536	709554	709571	709589	709606	709624	709642	709659	709677	709695	709712	10	2. "	
50	9.709730	709748	709765	709783	709800	709818	709836	709853	709871	709889	709906	709924	9	3. "	
51	9.709942	709959	709977	709994	710012	710030	710047	710065	710082	710100	710118	710135	8	4. "	
52	9.710153	710171	710188	710206	710223	710241	710259	710276	710294	710311	710329	710347	7	1 = +	
53	9.710364	710382	710399	710417	710435	710452	710470	710487	710505	710523	710540	710558	6	2. "	
54	9.710575	710593	710611	710628	710646	710663	710681	710698	710716	710734	710751	710769	5	3. "	
55	9.710786	710804	710822	710839	710857	710874	710892	710909	710927	710945	710962	710980	4	4. "	
56	9.710997	711015	711032	711050	711068	711085	711103	711120	711138	711155	711173	711190	3	1 = +	
57	9.711208	711226	711243	711261	711278	711296	711313	711331	711348	711366	711384	711401	2	2. "	
58	9.711419	711436	711454	711471	711489	711506	711524	711541	711559	711576	711594	711612	1	3. "	
59	9.711629	711647	711664	711682	711699	711717	711734	711752	711769	711787	711804	711822	0	4. "	
60" 55" 50" 45" 40" 35" 30" 25" 20" 15" 10" 5"														Minutes	Proport. parts.
Co-sine of 59 degrees, or Sine of 149 degrees.															

Sine of 31 degrees, or Co-sine of 121 degrees.

Sine of 31 degrees, or Co-sine of 121 degrees.												Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
39	711857	711874	711892	711909	711927	711944	711962	711980	711997	712015	712032	59	1" = 4
50	712067	712085	712102	712120	712137	712155	712172	712190	712207	712225	712242	58	2. 7
60	712277	712295	712312	712330	712347	712365	712382	712400	712417	712435	712452	57	3. 11
70	712487	712504	712522	712539	712557	712574	712592	712609	712627	712644	712662	56	4. 14
80	712697	712714	712732	712749	712767	712784	712802	712819	712837	712854	712871	55	1 = 3
90	712906	712924	712941	712959	712976	712994	713011	713029	713046	713063	713081	54	2. 7
98	713116	713133	713151	713168	713186	713203	713221	713238	713255	713273	713290	53	3. 10
08	713325	713343	713360	713378	713395	713412	713430	713447	713465	713482	713500	52	4. 14
17	713534	713552	713569	713587	713604	713622	713639	713656	713674	713691	713709	51	1 = 3
26	713743	713761	713778	713796	713813	713831	713848	713865	713883	713900	713918	50	2. 7
35	713952	713970	713987	714005	714022	714039	714057	714074	714092	714109	714126	49	3. 10
44	714161	714179	714196	714213	714231	714248	714266	714283	714300	714318	714335	48	4. 14
53	714370	714387	714405	714422	714439	714457	714474	714491	714509	714526	714544	47	1 = 3
62	714578	714596	714613	714630	714648	714665	714683	714700	714717	714735	714752	46	2. 7
69	714787	714804	714821	714839	714856	714874	714891	714908	714926	714943	714960	45	3. 10
78	714995	715012	715030	715047	715064	715082	715099	715116	715134	715151	715168	44	4. 14
86	715203	715220	715238	715255	715272	715290	715307	715324	715342	715359	715376	43	1 = 3
94	715411	715428	715446	715463	715480	715498	715515	715532	715550	715567	715584	42	2. 7
02	715619	715636	715654	715671	715688	715705	715723	715740	715757	715775	715792	41	3. 10
09	715827	715844	715861	715878	715896	715913	715930	715948	715965	715982	716000	40	4. 14
17	716034	716051	716068	716086	716103	716121	716138	716155	716172	716190	716207	39	1 = 3
24	716242	716259	716277	716293	716311	716328	716345	716363	716380	716397	716414	38	2. 7
32	716449	716466	716483	716501	716518	716535	716552	716570	716587	716604	716622	37	3. 10
39	716656	716673	716691	716708	716725	716742	716760	716777	716794	716811	716829	36	4. 14
46	716863	716880	716898	716915	716932	716949	716967	716984	717001	717018	717035	35	1 = 3
53	717070	717087	717104	717122	717139	717156	717173	717191	717208	717225	717242	34	2. 7
60	717277	717294	717311	717328	717346	717363	717380	717397	717414	717432	717449	33	3. 10
66	717483	717501	717518	717535	717552	717569	717587	717604	717621	717638	717655	32	4. 14
73	717690	717707	717724	717741	717759	717776	717793	717810	717827	717845	717862	31	1 = 3
79	717896	717913	717930	717948	717965	717982	717999	718016	718034	718051	718068	30	2. 7
85	718102	718120	718137	718154	718171	718188	718205	718222	718240	718257	718274	29	3. 10
91	718308	718326	718343	718360	718377	718394	718411	718429	718446	718463	718480	28	4. 14
97	718514	718532	718549	718566	718583	718600	718617	718634	718652	718669	718686	27	1 = 3
03	718720	718737	718754	718771	718789	718806	718823	718840	718857	718874	718892	26	2. 7
09	718926	718943	718960	718977	718994	719011	719029	719046	719063	719080	719097	25	3. 10
14	719131	719148	719166	719183	719200	719217	719234	719251	719268	719285	719303	24	4. 14
20	719337	719354	719371	719388	719405	719422	719439	719457	719474	719491	719508	23	1 = 3
25	719542	719559	719576	719593	719610	719628	719645	719662	719679	719696	719713	22	2. 7
30	719747	719764	719781	719798	719816	719833	719850	719867	719884	719901	719918	21	3. 10
35	719952	719969	719986	720003	720020	720038	720055	720072	720089	720106	720123	20	4. 14
40	720157	720174	720191	720208	720225	720242	720259	720276	720293	720311	720328	19	1 = 3
45	720362	720379	720396	720413	720430	720447	720464	720481	720498	720515	720532	18	2. 7
50	720566	720583	720600	720618	720635	720652	720669	720686	720703	720720	720737	17	3. 10
54	720771	720788	720805	720822	720839	720856	720873	720890	720907	720924	720941	16	4. 14
58	720975	720992	721009	721026	721043	721060	721077	721094	721111	721128	721145	15	1 = 3
62	721179	721196	721213	721230	721247	721264	721281	721298	721315	721332	721349	14	2. 7
66	721383	721400	721417	721434	721451	721468	721485	721502	721519	721536	721553	13	3. 10
70	721587	721604	721621	721638	721655	721672	721689	721706	721723	721740	721757	12	4. 14
74	721791	721808	721825	721842	721859	721876	721893	721910	721927	721944	721961	11	1 = 3
78	721995	722012	722029	722046	722063	722080	722097	722114	722131	722148	722165	10	2. 7
81	722198	722215	722232	722249	722266	722283	722300	722317	722334	722351	722368	9	3. 10
85	722402	722419	722436	722453	722470	722487	722503	722520	722537	722554	722571	8	4. 14
88	722605	722622	722639	722656	722673	722690	722707	722724	722741	722757	722774	7	1 = 3
91	722808	722825	722842	722859	722876	722893	722910	722927	722944	722961	722977	6	2. 7
94	723011	723028	723045	723062	723079	723096	723113	723130	723147	723163	723180	5	3. 10
97	723214	723231	723248	723265	723282	723299	723316	723332	723349	723366	723383	4	4. 14
00	723417	723434	723451	723468	723484	723501	723518	723535	723552	723569	723586	3	1 = 3
03	723620	723636	723653	723670	723687	723704	723721	723738	723755	723771	723788	2	2. 7
05	723822	723839	723856	723873	723889	723906	723923	723940	723957	723974	723991	1	3. 10
08	724024	724041	724058	724075	724092	724109	724126	724142	724159	724176	724193	0	4. 14
55" 50" 45" 40" 35" 30" 25" 20" 15" 10" 5"												Minutes	Proport. parts.
Co-sine of 58 degrees, or Sine of 148 degrees.													

TABLE XXXVI.

LOGARITHMIC SINES.

Minutes		Sine of 32 degrees, or Co-sine of 122 degrees.											
		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	9.724210	724227	724243	724260	724277	724294	724311	724328	724345	724361	724378	724395	
1	9.724412	724429	724446	724463	724479	724496	724513	724530	724547	724563	724580	724597	
2	9.724614	724631	724647	724664	724681	724698	724715	724732	724748	724765	724782	724799	
3	9.724816	724833	724849	724866	724883	724900	724917	724933	724950	724967	724984	725001	
4	9.725017	725034	725051	725068	725085	725101	725118	725135	725152	725169	725185	725202	
5	9.725219	725236	725253	725269	725286	725303	725320	725337	725353	725370	725387	725404	
6	9.725420	725437	725454	725471	725488	725504	725521	725538	725555	725571	725588	725605	
7	9.725622	725639	725655	725672	725689	725706	725722	725739	725756	725773	725789	725806	
8	9.725823	725840	725856	725873	725890	725907	725924	725940	725957	725974	725991	726007	
9	9.726024	726041	726058	726074	726091	726108	726125	726141	726158	726175	726191	726208	
10	9.726225	726242	726258	726275	726292	726309	726325	726342	726359	726376	726392	726409	
11	9.726426	726443	726459	726476	726493	726509	726526	726543	726560	726576	726593	726610	
12	9.726626	726643	726660	726677	726693	726710	726727	726743	726760	726777	726794	726810	
13	9.726827	726844	726860	726877	726894	726911	726927	726944	726961	726977	726994	727011	
14	9.727027	727044	727061	727077	727094	727111	727128	727144	727161	727178	727194	727211	
15	9.727228	727244	727261	727278	727294	727311	727328	727344	727361	727378	727394	727411	
16	9.727428	727445	727461	727478	727495	727511	727528	727545	727561	727578	727595	727611	
17	9.727628	727645	727661	727678	727695	727711	727728	727744	727761	727778	727794	727811	
18	9.727828	727844	727861	727878	727894	727911	727928	727944	727961	727978	727994	728011	
19	9.728028	728044	728061	728077	728094	728111	728127	728144	728161	728177	728194	728211	
20	9.728227	728244	728260	728277	728294	728310	728327	728344	728360	728377	728393	728410	
21	9.728427	728443	728460	728477	728493	728510	728526	728543	728560	728576	728593	728609	
22	9.728626	728643	728659	728676	728693	728709	728726	728742	728759	728776	728792	728809	
23	9.728825	728842	728859	728875	728892	728908	728925	728942	728958	728975	728991	729008	
24	9.729024	729041	729058	729074	729091	729107	729124	729141	729157	729174	729190	729207	
25	9.729223	729240	729257	729273	729290	729306	729323	729340	729356	729373	729389	729406	
26	9.729422	729439	729455	729472	729489	729505	729522	729538	729555	729571	729588	729605	
27	9.729621	729638	729654	729671	729687	729704	729720	729737	729754	729770	729787	729803	
28	9.729820	729836	729853	729869	729886	729902	729919	729935	729952	729969	729985	730002	
29	9.730018	730035	730051	730068	730084	730101	730117	730134	730150	730167	730184	730200	
30	9.730217	730233	730250	730266	730283	730299	730316	730332	730349	730365	730382	730398	
31	9.730415	730431	730448	730464	730481	730497	730514	730530	730547	730563	730580	730596	
32	9.730613	730629	730646	730662	730679	730695	730712	730728	730745	730761	730778	730794	
33	9.730811	730827	730844	730860	730877	730893	730910	730926	730943	730959	730976	730992	
34	9.731009	731025	731042	731058	731075	731091	731108	731124	731141	731157	731174	731190	
35	9.731206	731223	731239	731256	731272	731289	731305	731322	731338	731355	731371	731388	
36	9.731404	731421	731437	731453	731470	731486	731503	731519	731536	731552	731569	731585	
37	9.731602	731618	731634	731651	731667	731684	731700	731717	731733	731750	731766	731782	
38	9.731799	731815	731832	731848	731865	731881	731898	731914	731930	731947	731963	731980	
39	9.731996	732013	732029	732045	732062	732078	732095	732111	732128	732144	732160	732177	
40	9.732193	732210	732226	732242	732259	732275	732292	732308	732325	732341	732357	732374	
41	9.732390	732407	732423	732439	732455	732472	732489	732505	732521	732538	732554	732571	
42	9.732587	732603	732620	732636	732653	732669	732685	732702	732718	732735	732751	732767	
43	9.732784	732800	732817	732833	732849	732866	732882	732898	732915	732931	732948	732964	
44	9.732980	732997	733013	733029	733046	733062	733079	733095	733111	733128	733144	733160	
45	9.733177	733193	733210	733226	733242	733259	733275	733291	733308	733324	733340	733357	
46	9.733373	733390	733406	733422	733439	733455	733471	733488	733504	733520	733537	733553	
47	9.733569	733586	733602	733618	733635	733651	733667	733684	733700	733716	733733	733749	
48	9.733765	733782	733798	733814	733831	733847	733863	733880	733896	733912	733929	733945	
49	9.733961	733978	733994	734010	734027	734043	734059	734076	734092	734108	734125	734141	
50	9.734157	734174	734190	734206	734223	734239	734255	734271	734288	734304	734320	734337	
51	9.734353	734369	734386	734402	734418	734434	734451	734467	734483	734500	734516	734532	
52	9.734549	734565	734581	734597	734614	734630	734646	734663	734679	734695	734711	734728	
53	9.734744	734760	734777	734793	734809	734825	734842	734858	734874	734891	734907	734923	
54	9.734939	734956	734972	734988	735005	735021	735037	735053	735070	735086	735102	735118	
55	9.735135	735151	735167	735183	735200	735216	735232	735248	735265	735281	735297	735313	
56	9.735330	735346	735362	735378	735395	735411	735427	735443	735460	735476	735492	735508	
57	9.735525	735541	735557	735573	735590	735606	735622	735638	735655	735671	735687	735703	
58	9.735720	735736	735752	735768	735784	735801	735817	735833	735849	735866	735882	735898	
59	9.735914	735930	735947	735963	735979	735995	736012	736028	736044	736060	736076	736093	
		60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'
Minutes		Co-sine of 57 degrees, or Sine of 147 degrees.											

LOGARITHMIC SINES.

Sine of 33 degrees, or Co-sine of 123 degrees.											Minutes	Proper parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
736125	736141	736157	736174	736190	736206	736222	736238	736255	736271	736287	59	1" = 3
736319	736336	736352	736368	736384	736400	736417	736433	736449	736465	736481	58	2. 6
736514	736530	736546	736562	736579	736595	736611	736627	736643	736659	736676	57	3. 10
736708	736724	736740	736757	736773	736789	736805	736821	736837	736854	736870	56	4. 13
736902	736918	736934	736951	736967	736983	736999	737015	737031	737048	737064	55	1 = 3
737096	737112	737128	737145	737161	737177	737193	737209	737225	737241	737258	54	2. 6
737290	737306	737322	737338	737355	737371	737387	737403	737419	737435	737451	53	3. 10
737484	737500	737516	737533	737548	737564	737580	737597	737613	737629	737645	52	4. 13
737677	737693	737710	737726	737742	737758	737774	737790	737806	737822	737838	51	1 = 3
737871	737887	737903	737919	737935	737951	737967	737984	738000	738016	738032	50	2. 6
738064	738080	738096	738112	738128	738145	738161	738177	738193	738209	738225	49	3. 10
738257	738273	738289	738306	738322	738338	738354	738370	738386	738402	738418	48	4. 13
738450	738466	738483	738499	738515	738531	738547	738563	738579	738595	738611	47	1 = 3
738643	738659	738676	738692	738708	738724	738740	738756	738772	738788	738804	46	2. 6
738836	738852	738868	738884	738901	738917	738933	738949	738965	738981	738997	45	3. 10
739029	739045	739061	739077	739093	739109	739125	739141	739157	739173	739189	44	4. 13
739222	739238	739254	739270	739286	739302	739318	739334	739350	739366	739382	43	1 = 3
739414	739430	739446	739462	739478	739494	739510	739526	739542	739558	739574	42	2. 6
739606	739622	739639	739655	739671	739687	739703	739719	739735	739751	739767	41	3. 10
739799	739815	739831	739847	739863	739879	739895	739911	739927	739943	739959	40	4. 13
739991	740007	740023	740039	740055	740071	740087	740103	740119	740135	740151	39	1 = 3
740183	740199	740215	740231	740247	740263	740279	740295	740311	740327	740343	38	2. 6
740375	740391	740407	740423	740439	740455	740471	740487	740503	740519	740535	37	3. 10
740567	740583	740598	740614	740630	740646	740662	740678	740694	740710	740726	36	4. 13
740758	740774	740790	740806	740822	740838	740854	740870	740886	740902	740918	35	1 = 3
740950	740966	740982	740998	741014	741030	741046	741061	741077	741093	741109	34	2. 6
741141	741157	741173	741189	741205	741221	741237	741253	741269	741285	741300	33	3. 10
741332	741348	741364	741380	741396	741412	741428	741444	741460	741476	741492	32	4. 13
741523	741539	741555	741571	741587	741603	741619	741635	741651	741667	741683	31	1 = 3
741715	741730	741746	741762	741778	741794	741810	741826	741842	741858	741874	30	2. 6
741905	741921	741937	741953	741969	741985	742001	742017	742033	742049	742064	29	3. 10
742096	742112	742128	742144	742160	742176	742192	742207	742223	742239	742255	28	4. 13
742287	742303	742319	742335	742350	742366	742382	742398	742414	742430	742446	27	1 = 3
742477	742493	742509	742525	742541	742557	742573	742589	742604	742620	742636	26	2. 6
742668	742684	742700	742715	742731	742747	742763	742779	742795	742811	742827	25	3. 10
742858	742874	742890	742906	742922	742937	742953	742969	742985	743001	743017	24	4. 13
743048	743064	743080	743096	743112	743128	743143	743159	743175	743191	743207	23	1 = 3
743238	743254	743270	743286	743302	743318	743333	743349	743365	743381	743397	22	2. 6
743428	743444	743460	743476	743492	743508	743523	743539	743555	743571	743587	21	3. 10
743618	743634	743650	743666	743682	743697	743713	743729	743745	743761	743776	20	4. 13
743808	743824	743840	743855	743871	743887	743903	743919	743934	743950	743966	19	1 = 3
743998	744013	744029	744045	744061	744077	744092	744108	744124	744140	744155	18	2. 6
744187	744203	744219	744234	744250	744266	744282	744298	744313	744329	744345	17	3. 10
744376	744392	744408	744424	744440	744455	744471	744487	744503	744518	744534	16	4. 13
744566	744581	744597	744613	744629	744644	744660	744676	744692	744708	744723	15	1 = 3
744755	744771	744786	744802	744818	744834	744849	744865	744881	744897	744912	14	2. 6
744944	744960	744975	744991	745007	745022	745038	745054	745070	745085	745101	13	3. 10
745133	745148	745164	745180	745196	745211	745227	745243	745259	745274	745290	12	4. 13
745321	745337	745353	745369	745384	745400	745416	745431	745447	745463	745479	11	1 = 3
745510	745526	745541	745557	745573	745589	745604	745620	745636	745651	745667	10	2. 6
745690	745714	745730	745746	745761	745777	745793	745808	745824	745840	745856	9	3. 10
745887	745903	745918	745934	745950	745965	745981	745997	746013	746028	746044	8	4. 13
746075	746091	746107	746122	746138	746154	746169	746185	746201	746216	746232	7	1 = 3
746263	746279	746295	746310	746326	746342	746357	746373	746389	746404	746420	6	2. 6
746451	746467	746483	746498	746514	746530	746545	746561	746577	746592	746608	5	3. 10
746639	746655	746671	746686	746702	746718	746733	746749	746765	746780	746796	4	4. 13
746827	746843	746859	746874	746890	746905	746921	746937	746952	746968	746984	3	1 = 3
747015	747031	747046	747062	747077	747093	747109	747124	747140	747156	747171	2	2. 6
747203	747218	747234	747249	747265	747281	747296	747312	747327	747343	747359	1	3. 10
747390	747406	747421	747437	747452	747468	747484	747499	747515	747530	747546	0	4. 13
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proper parts.
Co-sine of 56 degrees, or Sine of 146 degrees.												

LOGARITHMIC SINES.

Sine of 34 degrees, or Co-sine of 124 degrees.													
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes
0	9.747562	747577	747593	747609	747624	747640	747655	747671	747687	747702	747718	747733	59
1	9.747749	747765	747780	747796	747811	747827	747843	747858	747874	747889	747905	747920	58
2	9.747936	747952	747967	747983	747998	748014	748030	748045	748061	748076	748092	748107	57
3	9.748123	748139	748154	748170	748185	748201	748217	748232	748248	748263	748279	748294	56
4	9.748310	748326	748341	748357	748372	748388	748403	748419	748434	748450	748466	748481	55
5	9.748407	748423	748438	748454	748469	748485	748500	748516	748531	748547	748562	748578	54
6	9.748683	748699	748714	748730	748746	748761	748777	748792	748808	748823	748839	748854	53
7	9.748870	748885	748901	748916	748932	748948	748963	748979	748994	749010	749025	749041	52
8	9.749056	749072	749087	749103	749118	749134	749149	749165	749181	749196	749212	749227	51
9	9.749243	749258	749274	749289	749305	749320	749336	749351	749367	749382	749398	749413	50
10	9.749429	749444	749460	749475	749491	749506	749522	749537	749553	749568	749584	749599	49
11	9.749615	749630	749646	749661	749677	749692	749708	749723	749739	749754	749770	749785	48
12	9.749801	749816	749832	749847	749863	749878	749894	749909	749925	749940	749956	749971	47
13	9.749987	750002	750018	750033	750049	750064	750079	750095	750110	750126	750141	750157	46
14	9.750172	750188	750203	750219	750234	750250	750265	750281	750296	750312	750327	750342	45
15	9.750358	750373	750389	750404	750420	750435	750451	750466	750482	750497	750513	750528	44
16	9.750543	750559	750574	750590	750605	750621	750636	750652	750667	750682	750698	750713	43
17	9.750729	750744	750760	750775	750791	750806	750821	750837	750852	750868	750883	750899	42
18	9.750914	750929	750945	750960	750976	750991	751007	751022	751037	751053	751068	751084	41
19	9.751099	751115	751130	751145	751161	751176	751192	751207	751222	751238	751253	751269	40
20	9.751284	751300	751315	751330	751346	751361	751377	751392	751407	751423	751438	751454	39
21	9.751469	751485	751500	751515	751531	751546	751562	751577	751592	751608	751623	751639	38
22	9.751654	751669	751685	751700	751715	751731	751746	751762	751777	751792	751808	751823	37
23	9.751839	751854	751869	751885	751900	751915	751931	751946	751962	751977	751992	752008	36
24	9.752023	752039	752054	752069	752085	752100	752115	752131	752146	752161	752177	752192	35
25	9.752208	752223	752238	752254	752269	752284	752300	752315	752330	752346	752361	752377	34
26	9.752392	752407	752423	752438	752453	752469	752484	752499	752515	752530	752545	752561	33
27	9.752576	752591	752607	752622	752638	752653	752668	752684	752699	752714	752730	752745	32
28	9.752760	752776	752791	752806	752822	752837	752852	752868	752883	752898	752914	752929	31
29	9.752944	752960	752975	752990	753006	753021	753036	753051	753067	753082	753097	753113	30
30	9.753128	753143	753159	753174	753189	753205	753220	753235	753251	753266	753281	753297	29
31	9.753312	753327	753342	753358	753373	753388	753404	753419	753434	753450	753465	753480	28
32	9.753495	753511	753526	753541	753557	753572	753587	753603	753618	753633	753648	753664	27
33	9.753679	753694	753710	753725	753740	753755	753771	753786	753801	753817	753832	753847	26
34	9.753862	753878	753893	753908	753924	753939	753954	753969	753985	753999	754015	754030	25
35	9.754046	754061	754076	754092	754107	754122	754137	754153	754168	754183	754198	754214	24
36	9.754229	754244	754259	754275	754290	754305	754320	754336	754351	754366	754381	754397	23
37	9.754412	754427	754442	754458	754473	754488	754503	754519	754534	754549	754564	754580	22
38	9.754595	754610	754625	754641	754656	754671	754686	754702	754717	754732	754747	754763	21
39	9.754778	754793	754808	754823	754839	754854	754869	754884	754900	754915	754930	754945	20
40	9.754960	754976	754991	755006	755021	755037	755052	755067	755082	755097	755113	755128	19
41	9.755143	755158	755174	755189	755204	755219	755234	755250	755265	755280	755295	755310	18
42	9.755326	755341	755356	755371	755386	755402	755417	755432	755447	755462	755478	755493	17
43	9.755508	755523	755538	755554	755569	755584	755599	755614	755630	755645	755660	755675	16
44	9.755690	755705	755721	755736	755751	755766	755781	755797	755812	755827	755842	755857	15
45	9.755872	755888	755903	755918	755933	755948	755963	755979	755994	756009	756024	756039	14
46	9.756054	756070	756085	756100	756115	756130	756145	756161	756176	756191	756206	756221	13
47	9.756236	756252	756267	756282	756297	756312	756327	756343	756358	756373	756388	756403	12
48	9.756418	756433	756449	756464	756479	756494	756509	756524	756539	756555	756570	756585	11
49	9.756600	756615	756630	756645	756661	756676	756691	756706	756721	756736	756751	756766	10
50	9.756782	756797	756812	756827	756842	756857	756872	756887	756903	756918	756933	756948	9
51	9.756963	756978	756993	757008	757024	757039	757054	757069	757084	757099	757114	757129	8
52	9.757144	757160	757175	757190	757205	757220	757235	757250	757265	757280	757295	757311	7
53	9.757326	757341	757356	757371	757386	757401	757416	757431	757446	757462	757477	757492	6
54	9.757507	757522	757537	757552	757567	757582	757597	757612	757628	757643	757658	757673	5
55	9.757688	757703	757718	757733	757748	757763	757778	757793	757808	757823	757839	757854	4
56	9.757869	757884	757899	757914	757929	757944	757959	757974	757989	758004	758019	758035	3
57	9.758050	758065	758080	758095	758110	758125	758140	758155	758170	758185	758200	758215	2
58	9.758230	758245	758260	758275	758290	758306	758321	758336	758351	758366	758381	758396	1
59	9.758411	758426	758441	758456	758471	758486	758501	758516	758531	758546	758561	758576	0
60" 55" 50" 45" 40" 35" 30" 25" 20" 15" 10" 5"													
Co-sine of 55 degrees, or Sine of 145 degrees.													

LOGARITHMIC SINES.

Sine of 35 degrees, or Co-sine of 125 degrees.											Minutes	Proper parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
1 758606	758621	758636	758651	758667	758682	758697	758712	758727	758742	758757	59	1" = 3
2 758787	758802	758817	758832	758847	758862	758877	758892	758907	758922	758937	58	2. 6
3 758967	758982	758997	759012	759027	759042	759057	759072	759087	759102	759117	57	3. 9
4 759147	759162	759177	759192	759207	759222	759237	759252	759267	759282	759297	56	4. 12
5 759327	759342	759357	759372	759387	759402	759417	759432	759447	759462	759477	55	1 = 3
6 759507	759522	759537	759552	759567	759582	759597	759612	759627	759642	759657	54	2. 6
7 759687	759702	759717	759732	759747	759762	759777	759792	759807	759822	759837	53	3. 9
8 759867	759882	759897	759912	759927	759942	759957	759972	759987	760002	760016	52	4. 12
9 760046	760061	760076	760091	760106	760121	760136	760151	760166	760181	760196	51	1 = 3
1 760226	760241	760255	760270	760285	760300	760315	760330	760345	760360	760375	50	2. 6
2 760405	760420	760435	760450	760465	760480	760495	760509	760524	760539	760554	49	3. 9
3 760584	760599	760614	760629	760644	760659	760674	760689	760704	760719	760733	48	4. 12
4 760763	760778	760793	760808	760823	760838	760853	760868	760883	760898	760912	47	1 = 3
5 760942	760957	760972	760987	761002	761017	761032	761047	761062	761077	761091	46	2. 6
6 761121	761136	761151	761166	761181	761196	761211	761226	761240	761255	761270	45	3. 9
7 761300	761315	761330	761345	761360	761374	761389	761404	761419	761434	761449	44	4. 12
8 761479	761494	761508	761523	761538	761553	761568	761583	761598	761613	761628	43	1 = 3
9 761657	761672	761687	761702	761717	761732	761747	761761	761776	761791	761806	42	2. 6
1 761836	761851	761866	761880	761895	761910	761925	761940	761955	761970	761984	41	3. 9
2 762014	762029	762044	762059	762074	762088	762103	762118	762133	762148	762163	40	4. 12
3 762192	762207	762222	762237	762252	762267	762281	762296	762311	762326	762341	39	1 = 3
4 762371	762386	762400	762415	762430	762445	762460	762474	762489	762504	762519	38	2. 6
5 762549	762563	762578	762593	762608	762623	762638	762652	762667	762682	762697	37	3. 9
6 762726	762741	762756	762771	762786	762801	762815	762830	762845	762860	762875	36	4. 12
7 762904	762919	762934	762949	762964	762978	762993	763008	763023	763038	763052	35	1 = 3
8 763082	763097	763112	763126	763141	763156	763171	763186	763200	763215	763230	34	2. 6
9 763260	763274	763289	763304	763319	763334	763348	763363	763378	763393	763407	33	3. 9
1 763437	763452	763467	763481	763496	763511	763526	763541	763555	763570	763585	32	4. 12
2 763614	763629	763644	763659	763674	763688	763703	763718	763733	763747	763762	31	1 = 3
3 763792	763806	763821	763836	763851	763866	763880	763895	763910	763925	763939	30	2. 6
4 763969	763984	763998	764013	764028	764043	764057	764072	764087	764102	764116	29	3. 9
5 764146	764161	764175	764190	764205	764220	764234	764249	764264	764279	764293	28	4. 12
6 764323	764338	764353	764367	764382	764397	764411	764426	764441	764455	764470	27	1 = 3
7 764500	764514	764529	764544	764559	764573	764588	764603	764617	764632	764647	26	2. 6
8 764676	764691	764706	764721	764735	764750	764765	764779	764794	764809	764824	25	3. 9
9 764853	764868	764882	764897	764912	764927	764941	764956	764971	764985	765000	24	4. 12
1 765020	765034	765049	765064	765078	765093	765108	765122	765137	765152	765166	23	1 = 3
2 765206	765221	765235	765250	765265	765279	765294	765309	765323	765338	765353	22	2. 6
3 765382	765397	765412	765426	765441	765455	765470	765485	765500	765514	765529	21	3. 9
4 765558	765573	765588	765602	765617	765632	765646	765661	765676	765690	765705	20	4. 12
5 765734	765749	765764	765778	765793	765808	765822	765837	765852	765866	765881	19	1 = 3
6 765910	765925	765940	765954	765969	765984	765998	766013	766028	766042	766057	18	2. 6
7 766086	766101	766116	766130	766145	766159	766174	766189	766203	766218	766233	17	3. 9
8 766262	766277	766291	766306	766321	766335	766350	766364	766379	766394	766408	16	4. 12
9 766438	766453	766467	766482	766496	766511	766525	766540	766555	766569	766584	15	1 = 3
1 766613	766628	766642	766657	766672	766686	766701	766715	766730	766745	766759	14	2. 6
2 766789	766803	766818	766832	766847	766862	766876	766891	766905	766920	766935	13	3. 9
3 766964	766978	766993	767008	767022	767037	767051	767066	767081	767095	767110	12	4. 12
4 767139	767154	767168	767183	767197	767212	767227	767241	767256	767270	767285	11	1 = 3
5 767314	767329	767343	767358	767373	767387	767402	767416	767431	767445	767460	10	2. 6
6 767480	767494	767509	767523	767538	767552	767567	767581	767596	767610	767625	9	3. 9
7 767664	767679	767693	767708	767722	767737	767751	767766	767781	767795	767810	8	4. 12
8 767839	767853	767868	767883	767897	767912	767926	767941	767955	767970	767984	7	1 = 3
9 768014	768028	768043	768057	768072	768086	768101	768115	768130	768144	768159	6	2. 6
1 768188	768203	768217	768232	768246	768261	768275	768290	768304	768319	768333	5	3. 9
2 768363	768377	768392	768406	768421	768435	768450	768464	768479	768493	768508	4	4. 12
3 768537	768551	768566	768580	768595	768610	768624	768639	768653	768668	768682	3	1 = 3
4 768711	768726	768740	768755	768769	768784	768798	768813	768827	768842	768856	2	2. 6
5 768885	768900	768914	768929	768943	768958	768972	768987	769001	769016	769030	1	3. 9
6 769059	769074	769088	769103	769117	769132	769146	769161	769175	769190	769204	0	4. 12
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proper parts.
Co-sine of 54 degrees, or Sine of 144 degrees.											Minutes	Proper parts.

LOGARITHMIC SINES.

Minutes	Sine of 36 degrees, or Co-sine of 126 degrees.												Minutes	Prop.
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
0	9.769219	769233	769248	769262	769277	769291	769306	769320	769335	769349	769364	769378	59	1° =
1	9.769393	769407	769422	769436	769450	769465	769479	769494	769508	769523	769537	769552	58	2.
2	9.769566	769581	769595	769610	769624	769639	769653	769668	769682	769697	769711	769725	57	3.
3	9.769740	769754	769769	769783	769798	769812	769827	769841	769856	769870	769884	769899	56	4.
4	9.769913	769928	769942	769957	769971	769986	770000	770015	770029	770043	770058	770072	55	1° =
5	9.770087	770101	770116	770130	770145	770159	770173	770188	770202	770217	770231	770246	54	2.
6	9.770260	770275	770289	770303	770318	770332	770347	770361	770376	770390	770404	770419	53	3.
7	9.770433	770448	770462	770477	770491	770505	770520	770534	770549	770563	770578	770592	52	4.
8	9.770606	770621	770635	770650	770664	770678	770693	770707	770722	770736	770751	770765	51	1° =
9	9.770779	770794	770808	770823	770837	770851	770866	770880	770895	770909	770923	770938	50	2.
10	9.770952	770967	770981	770995	771010	771024	771039	771053	771067	771082	771096	771111	49	3.
11	9.771125	771139	771154	771168	771183	771197	771211	771226	771240	771255	771269	771283	48	4.
12	9.771298	771312	771326	771341	771355	771370	771384	771398	771413	771427	771441	771456	47	1° =
13	9.771470	771485	771499	771513	771528	771542	771556	771571	771585	771600	771614	771628	46	2.
14	9.771643	771657	771671	771686	771700	771714	771729	771743	771758	771772	771786	771801	45	3.
15	9.771815	771829	771844	771858	771872	771887	771901	771916	771930	771944	771959	771973	44	4.
16	9.771987	772002	772016	772030	772045	772059	772073	772088	772102	772116	772131	772145	43	1° =
17	9.772159	772174	772188	772202	772217	772231	772245	772260	772274	772288	772303	772317	42	2.
18	9.772331	772346	772360	772374	772389	772403	772417	772432	772446	772460	772475	772489	41	3.
19	9.772503	772518	772532	772546	772561	772575	772589	772604	772618	772632	772647	772661	40	4.
20	9.772675	772689	772704	772718	772732	772747	772761	772775	772790	772804	772818	772833	39	1° =
21	9.772847	772861	772875	772890	772904	772918	772933	772947	772961	772976	772990	773004	38	2.
22	9.773019	773033	773047	773061	773076	773090	773104	773119	773133	773147	773161	773176	37	3.
23	9.773190	773204	773219	773233	773247	773261	773276	773290	773304	773319	773333	773347	36	4.
24	9.773361	773376	773390	773404	773419	773433	773447	773461	773476	773490	773504	773518	35	1° =
25	9.773533	773547	773561	773576	773590	773604	773618	773633	773647	773661	773675	773690	34	2.
26	9.773704	773718	773732	773747	773761	773775	773789	773804	773818	773832	773846	773861	33	3.
27	9.773875	773889	773904	773918	773932	773946	773961	773975	773989	774003	774017	774032	32	4.
28	9.774046	774060	774074	774089	774103	774117	774131	774146	774160	774174	774188	774203	31	1° =
29	9.774217	774231	774245	774260	774274	774288	774302	774317	774331	774345	774359	774373	30	2.
30	9.774388	774402	774416	774430	774445	774459	774473	774487	774501	774516	774530	774544	29	3.
31	9.774558	774573	774587	774601	774615	774629	774644	774658	774672	774686	774700	774715	28	4.
32	9.774729	774743	774757	774772	774786	774800	774814	774828	774843	774857	774871	774885	27	1° =
33	9.774899	774914	774928	774942	774956	774970	774985	774999	775013	775027	775041	775056	26	2.
34	9.775070	775084	775098	775112	775126	775141	775155	775169	775183	775197	775212	775226	25	3.
35	9.775240	775254	775268	775283	775297	775311	775325	775339	775353	775368	775382	775396	24	4.
36	9.775410	775424	775438	775453	775467	775481	775495	775509	775524	775538	775552	775566	23	1° =
37	9.775580	775594	775609	775623	775637	775651	775665	775679	775694	775708	775722	775736	22	2.
38	9.775750	775764	775778	775793	775807	775821	775835	775849	775863	775878	775892	775906	21	3.
39	9.775920	775934	775948	775962	775977	775991	776005	776019	776033	776047	776061	776076	20	4.
40	9.776090	776104	776118	776132	776146	776160	776175	776189	776203	776217	776231	776245	19	1° =
41	9.776259	776274	776288	776302	776316	776330	776344	776358	776372	776386	776400	776415	18	2.
42	9.776429	776443	776457	776471	776485	776500	776514	776528	776542	776556	776570	776584	17	3.
43	9.776598	776612	776627	776641	776655	776669	776683	776697	776711	776725	776739	776754	16	4.
44	9.776768	776782	776796	776810	776824	776838	776852	776866	776881	776895	776909	776923	15	1° =
45	9.776937	776951	776965	776979	776993	777007	777021	777036	777050	777064	777078	777092	14	2.
46	9.777106	777120	777134	777148	777162	777176	777191	777205	777219	777233	777247	777261	13	3.
47	9.777275	777289	777303	777317	777331	777345	777360	777374	777388	777402	777416	777430	12	4.
48	9.777444	777458	777472	777486	777500	777514	777528	777542	777557	777571	777585	777599	11	1° =
49	9.777613	777627	777641	777655	777669	777683	777697	777711	777725	777739	777753	777767	10	2.
50	9.777782	777796	777810	777824	777838	777852	777866	777880	777894	777908	777922	777936	9	3.
51	9.777950	777964	777978	777992	778006	778020	778034	778048	778062	778077	778091	778105	8	4.
52	9.778119	778133	778147	778161	778175	778189	778203	778217	778231	778245	778259	778273	7	1° =
53	9.778287	778301	778315	778329	778343	778357	778371	778385	778399	778413	778427	778441	6	2.
54	9.778455	778469	778483	778497	778511	778525	778539	778553	778568	778582	778596	778610	5	3.
55	9.778624	778638	778652	778666	778680	778694	778708	778722	778736	778750	778764	778778	4	4.
56	9.778792	778806	778820	778834	778848	778862	778876	778890	778904	778918	778932	778946	3	1° =
57	9.778960	778974	778988	779002	779016	779030	779044	779058	779072	779086	779100	779114	2	2.
58	9.779128	779142	779156	779170	779184	779198	779211	779225	779239	779253	779267	779281	1	3.
59	9.779295	779309	779323	779337	779351	779365	779379	779393	779407	779421	779435	779449	0	4.
Minutes	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Prop.
Co-sine of 53 degrees, or Sine of 143 degrees.														

Sine of 37 degrees, or Co-sine of 127 degrees.											Minutes	Proport. parts.	
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
63	779477	779491	779505	779519	779533	779547	779561	779575	779589	779603	779617	59	1" = 3
31	779645	779659	779673	779687	779701	779714	779728	779742	779756	779770	779784	58	2. 6
798	779812	779826	779840	779854	779868	779882	779896	779910	779924	779938	779952	57	3. 8
966	779980	779993	780007	780021	780035	780049	780063	780077	780091	780105	780119	56	4. 11
133	780147	780161	780175	780189	780203	780217	780231	780244	780258	780272	780286	55	1 = 3
300	780314	780328	780342	780356	780370	780384	780398	780411	780425	780439	780453	54	2. 6
467	780481	780495	780509	780523	780537	780551	780565	780579	780593	780606	780620	53	3. 8
634	780648	780662	780676	780690	780704	780718	780731	780745	780759	780773	780787	52	4. 11
801	780815	780829	780843	780857	780871	780884	780898	780912	780926	780940	780954	51	1 = 3
968	780982	780996	781010	781023	781037	781051	781065	781079	781093	781107	781121	50	2. 6
134	781148	781162	781176	781190	781204	781218	781232	781246	781259	781273	781287	49	3. 8
301	781315	781329	781343	781357	781370	781384	781398	781412	781426	781440	781454	48	4. 11
468	781481	781495	781509	781523	781537	781551	781565	781578	781592	781606	781620	47	1 = 3
634	781648	781662	781676	781690	781703	781717	781731	781745	781759	781773	781786	46	2. 6
801	781814	781828	781842	781856	781869	781883	781897	781911	781925	781939	781953	45	3. 8
966	781980	781994	782008	782022	782036	782049	782063	782077	782091	782105	782119	44	4. 11
132	782146	782160	782174	782188	782202	782215	782229	782243	782257	782271	782285	43	1 = 3
300	782312	782326	782340	782354	782368	782381	782395	782409	782423	782437	782451	42	2. 6
464	782478	782492	782506	782520	782535	782549	782563	782577	782591	782605	782619	41	3. 8
630	782644	782658	782672	782686	782699	782713	782727	782741	782754	782768	782782	40	4. 11
796	782810	782823	782837	782851	782865	782879	782892	782906	782920	782934	782948	39	1 = 3
961	782975	782989	783003	783017	783030	783044	783058	783072	783086	783099	783113	38	2. 6
132	783141	783154	783168	783182	783196	783210	783223	783237	783251	783265	783279	37	3. 8
300	783306	783320	783334	783347	783361	783375	783389	783402	783416	783430	783444	36	4. 11
468	783471	783485	783499	783513	783526	783540	783554	783568	783581	783595	783609	35	1 = 3
634	783637	783650	783664	783678	783692	783705	783719	783733	783747	783760	783774	34	2. 6
801	783802	783815	783829	783843	783857	783870	783884	783898	783912	783925	783939	33	3. 8
968	783967	783980	783994	784008	784022	784035	784049	784063	784076	784090	784104	32	4. 11
133	784131	784145	784159	784173	784186	784200	784214	784228	784241	784255	784269	31	1 = 3
302	784296	784310	784324	784337	784351	784365	784379	784392	784406	784420	784433	30	2. 6
467	784461	784475	784488	784502	784516	784529	784543	784557	784571	784584	784598	29	3. 8
633	784625	784639	784653	784667	784680	784694	784708	784721	784735	784749	784763	28	4. 11
796	784790	784804	784817	784831	784845	784858	784872	784886	784900	784913	784927	27	1 = 3
961	784954	784968	784982	784995	785009	785023	785036	785050	785064	785078	785091	26	2. 6
132	785119	785133	785146	785160	785173	785187	785201	785214	785228	785242	785255	25	3. 8
300	785283	785296	785310	785324	785338	785351	785365	785379	785392	785406	785420	24	4. 11
468	785447	785461	785474	785488	785502	785515	785529	785543	785557	785570	785584	23	1 = 3
634	785611	785625	785638	785652	785666	785679	785693	785706	785720	785734	785747	22	2. 6
801	785775	785788	785802	785816	785829	785843	785857	785870	785884	785898	785911	21	3. 8
966	785930	785943	785956	785970	785983	785997	786010	786024	786038	786051	786065	20	4. 11
133	786102	786116	786130	786143	786157	786170	786184	786198	786211	786225	786239	19	1 = 3
302	786266	786279	786293	786307	786320	786334	786348	786361	786375	786388	786402	18	2. 6
467	786429	786443	786457	786470	786484	786497	786511	786525	786538	786552	786566	17	3. 8
633	786593	786606	786620	786634	786647	786661	786674	786688	786702	786715	786729	16	4. 11
796	786756	786770	786783	786797	786810	786824	786838	786851	786865	786878	786892	15	1 = 3
961	786919	786933	786946	786960	786974	786987	787001	787014	787028	787042	787055	14	2. 6
132	787082	787096	787110	787123	787137	787150	787164	787177	787191	787205	787218	13	3. 8
300	787245	787259	787272	787286	787300	787313	787327	787340	787354	787368	787381	12	4. 11
468	787408	787422	787435	787449	787463	787476	787490	787503	787517	787530	787544	11	1 = 3
634	787571	787585	787598	787612	787625	787639	787652	787666	787680	787693	787707	10	2. 6
801	787734	787747	787761	787774	787788	787802	787815	787829	787842	787856	787869	9	3. 8
968	787896	787910	787923	787937	787951	787964	787978	787991	788005	788018	788032	8	4. 11
133	788059	788072	788086	788100	788113	788127	788140	788154	788167	788181	788194	7	1 = 3
302	788221	788235	788248	788262	788275	788289	788302	788316	788330	788343	788357	6	2. 6
467	788384	788397	788411	788424	788438	788451	788465	788478	788492	788505	788519	5	3. 8
633	788546	788559	788573	788586	788600	788613	788627	788640	788654	788667	788681	4	4. 11
796	788708	788721	788735	788748	788762	788775	788789	788803	788816	788830	788843	3	1 = 3
961	788876	788889	788903	788916	788929	788943	788957	788970	788984	788998	790011	2	2. 6
132	789032	789045	789059	789072	789086	789099	789113	789126	789140	789153	789167	1	3. 8
300	789194	789207	789221	789234	789248	789261	789275	789288	789302	789315	789329	0	4. 11
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'		Minutes	Proport. parts.
Co-sine of 52 degrees, or Sine of 142 degrees.													

LOGARITHMIC SINES.

		Sine of 38 degrees, or Co-sine of 128 degrees.														
Minutes		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		Minutes	Prop.
0	9.789342	789356	789369	789382	789396	789409	789423	789436	789450	789463	789477	789490	789504	59	1	
1	9.789504	789517	789531	789544	789558	789571	789584	789598	789611	789625	789638	789652	789665	58	2	
2	9.789665	789679	789692	789706	789719	789733	789746	789759	789773	789786	789800	789813	789827	57	3	
3	9.789827	789840	789854	789867	789880	789894	789907	789921	789934	789948	789961	789975	790001	56	4	
4	9.789988	790001	790015	790028	790042	790055	790069	790082	790096	790109	790122	790136	790163	55	5	
5	9.790149	790163	790176	790190	790203	790216	790230	790243	790257	790270	790284	790297	790324	54	6	
6	9.790310	790324	790337	790351	790364	790378	790391	790404	790418	790431	790445	790458	790485	53	7	
7	9.790472	790485	790498	790512	790525	790539	790552	790565	790579	790592	790606	790619	790646	52	8	
8	9.790633	790646	790659	790673	790686	790700	790713	790726	790740	790753	790767	790780	790807	51	9	
9	9.790793	790807	790820	790834	790847	790860	790874	790887	790901	790914	790927	790941	790968	50	10	
10	9.790954	790968	790981	790994	791008	791021	791035	791048	791061	791075	791088	791101	791128	49	11	
11	9.791115	791128	791142	791155	791168	791182	791195	791209	791222	791235	791249	791262	791289	48	12	
12	9.791275	791289	791302	791316	791329	791342	791356	791369	791382	791396	791409	791423	791449	47	1	
13	9.791436	791449	791463	791476	791489	791503	791516	791529	791543	791556	791570	791583	791610	46	2	
14	9.791596	791610	791623	791636	791650	791663	791676	791690	791703	791717	791730	791743	791770	45	3	
15	9.791757	791770	791783	791797	791810	791823	791837	791850	791863	791877	791890	791903	791930	44	4	
16	9.791917	791930	791944	791957	791970	791984	791997	792010	792024	792037	792050	792064	792090	43	5	
17	9.792077	792090	792104	792117	792130	792144	792157	792170	792184	792197	792210	792224	792250	42	6	
18	9.792237	792250	792264	792277	792290	792304	792317	792330	792344	792357	792370	792384	792410	41	7	
19	9.792397	792410	792423	792437	792450	792463	792477	792490	792503	792517	792530	792543	792570	40	8	
20	9.792557	792570	792583	792597	792610	792623	792637	792650	792663	792676	792690	792703	792730	39	9	
21	9.792716	792730	792743	792756	792770	792783	792796	792810	792823	792836	792849	792863	792890	38	10	
22	9.792876	792889	792903	792916	792929	792943	792956	792969	792982	792996	793009	793022	793049	37	11	
23	9.793036	793049	793062	793075	793089	793102	793115	793128	793142	793155	793168	793182	793209	36	12	
24	9.793195	793208	793222	793235	793248	793261	793275	793288	793301	793315	793328	793341	793368	35	1	
25	9.793354	793368	793381	793394	793407	793421	793434	793447	793461	793474	793487	793500	793527	34	2	
26	9.793514	793527	793540	793553	793566	793580	793593	793606	793620	793633	793646	793659	793686	33	3	
27	9.793673	793686	793699	793713	793726	793739	793752	793766	793779	793792	793805	793819	793846	32	4	
28	9.793832	793845	793858	793872	793885	793898	793911	793925	793938	793951	793964	793978	794005	31	5	
29	9.793991	794004	794017	794030	794044	794057	794070	794083	794097	794110	794123	794136	794163	30	6	
30	9.794150	794163	794176	794189	794203	794216	794229	794242	794255	794268	794282	794295	794322	29	7	
31	9.794308	794322	794335	794348	794361	794375	794388	794401	794414	794427	794441	794454	794481	28	8	
32	9.794467	794480	794494	794507	794520	794533	794546	794560	794573	794586	794599	794612	794639	27	9	
33	9.794626	794639	794652	794665	794678	794692	794705	794718	794731	794745	794758	794771	794798	26	10	
34	9.794784	794797	794811	794824	794837	794850	794863	794877	794890	794903	794916	794929	794956	25	11	
35	9.794943	794956	794969	794982	794995	795009	795022	795035	795048	795061	795074	795088	795115	24	12	
36	9.795101	795114	795127	795140	795154	795167	795180	795193	795206	795219	795233	795246	795273	23	1	
37	9.795259	795272	795285	795299	795312	795325	795338	795351	795364	795378	795391	795404	795431	22	2	
38	9.795417	795430	795443	795457	795470	795483	795496	795509	795523	795536	795549	795562	795589	21	3	
39	9.795575	795588	795601	795615	795628	795641	795654	795667	795680	795693	795707	795720	795747	20	4	
40	9.795733	795746	795759	795773	795786	795799	795812	795825	795838	795851	795865	795878	795905	19	5	
41	9.795891	795904	795917	795930	795944	795957	795970	795983	795996	796009	796022	796036	796063	18	6	
42	9.796049	796062	796075	796088	796101	796114	796127	796141	796154	796167	796180	796193	796220	17	7	
43	9.796206	796219	796233	796246	796259	796272	796285	796298	796311	796324	796338	796351	796378	16	8	
44	9.796364	796377	796390	796403	796416	796429	796443	796456	796469	796482	796495	796508	796535	15	9	
45	9.796521	796534	796548	796561	796574	796587	796600	796613	796626	796639	796652	796666	796693	14	10	
46	9.796679	796692	796705	796718	796731	796744	796757	796770	796783	796797	796810	796823	796850	13	11	
47	9.796830	796843	796856	796869	796882	796895	796908	796921	796934	796947	796960	796973	796999	12	12	
48	9.796993	797006	797019	797032	797045	797059	797072	797085	797098	797111	797124	797137	797164	11	1	
49	9.797150	797163	797176	797189	797202	797216	797229	797242	797255	797268	797281	797294	797321	10	2	
50	9.797307	797320	797333	797346	797359	797373	797386	797399	797412	797425	797438	797451	797478	9	3	
51	9.797464	797477	797490	797503	797516	797529	797542	797555	797569	797582	797595	797608	797635	8	4	
52	9.797621	797634	797647	797660	797673	797686	797699	797712	797725	797738	797751	797764	797791	7	5	
53	9.797778	797791	797804	797817	797830	797843	797856	797869	797882	797895	797908	797921	797948	6	6	
54	9.797934	797947	797960	797973	797986	797999	798012	798025	798039	798052	798065	798078	798105	5	7	
55	9.798091	798104	798117	798130	798143	798156	798169	798182	798195	798208	798221	798234	798261	4	8	
56	9.798247	798260	798273	798286	798299	798312	798325	798338	798351	798364	798377	798390	798417	3	9	
57	9.798403	798416	798429	798442	798455	798469	798482	798495	798508	798521	798534	798547	798574	2	10	
58	9.798560	798573	798586	798599	798612	798625	798638	798651	798664	798677	798690	798703	798730	1	11	
59	9.798716	798729	798742	798755	798768	798781	798794	798807	798820	798833	798846	798859	798886	0	12	
		60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°			
Co-sine of 51 degrees, or Sine of 141 degrees.																

LOGARITHMIC SINES.

Sine of 39 degrees, or Co-sine of 129 degrees.												Minutes	Proport. parts.
	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
872	798885	798898	798911	798924	798937	798950	798963	798976	798989	799002	799015	59	1" = 3
028	799041	799054	799067	799080	799093	799106	799119	799132	799145	799158	799171	58	2. = 5
184	799197	799210	799223	799236	799249	799262	799275	799288	799301	799313	799326	57	3. = 8
339	799352	799365	799378	799391	799404	799417	799430	799443	799456	799469	799482	56	4. = 10
495	799508	799521	799534	799547	799560	799573	799586	799599	799612	799625	799638	55	1" = 3
651	799664	799677	799690	799703	799716	799728	799741	799754	799767	799780	799793	54	2. = 5
806	799819	799832	799845	799858	799871	799884	799897	799910	799923	799936	799949	53	3. = 8
962	799975	799988	800000	800013	800026	800039	800052	800065	800078	800091	800104	52	4. = 10
117	800130	800143	800156	800169	800182	800195	800207	800220	800233	800246	800259	51	1" = 3
172	800285	800298	800311	800324	800337	800350	800363	800376	800389	800401	800414	50	2. = 5
127	800440	800453	800466	800479	800492	800505	800518	800531	800544	800556	800569	49	3. = 8
182	800595	800608	800621	800634	800647	800660	800673	800686	800699	800711	800724	48	4. = 10
337	800750	800763	800776	800789	800802	800815	800828	800841	800853	800866	800879	47	1" = 3
492	800905	800918	800931	800944	800957	800970	800982	800995	801008	801021	801034	46	2. = 5
647	801060	801073	801086	801098	801111	801124	801137	801150	801163	801176	801189	45	3. = 8
802	801210	801223	801236	801249	801262	801275	801288	801301	801313	801326	801339	44	4. = 10
956	801369	801382	801395	801408	801420	801433	801446	801459	801472	801485	801498	43	1" = 3
111	801523	801536	801549	801562	801575	801588	801601	801614	801626	801639	801652	42	2. = 5
165	801678	801691	801704	801717	801729	801742	801755	801768	801781	801794	801806	41	3. = 8
199	801832	801845	801858	801871	801884	801896	801909	801922	801935	801948	801961	40	4. = 10
74	801986	801999	802012	802025	802038	802051	802063	802076	802089	802102	802115	39	1" = 3
28	802140	802153	802166	802179	802192	802205	802217	802230	802243	802256	802269	38	2. = 5
82	802294	802307	802320	802333	802346	802359	802371	802384	802397	802410	802423	37	3. = 8
36	802448	802461	802474	802487	802500	802513	802525	802538	802551	802564	802577	36	4. = 10
90	802602	802615	802628	802641	802654	802666	802679	802692	802705	802718	802730	35	1" = 3
43	802756	802769	802782	802794	802807	802820	802833	802846	802858	802871	802884	34	2. = 5
97	802910	802922	802935	802948	802961	802974	802986	802999	803012	803025	803038	33	3. = 8
50	803063	803076	803089	803102	803114	803127	803140	803153	803166	803178	803191	32	4. = 10
24	803217	803229	803242	803255	803268	803281	803293	803306	803319	803332	803344	31	1" = 3
57	803370	803383	803396	803408	803421	803434	803447	803459	803472	803485	803498	30	2. = 5
11	803523	803536	803549	803562	803574	803587	803600	803613	803625	803638	803651	29	3. = 8
54	803677	803689	803702	803715	803728	803740	803753	803766	803779	803791	803804	28	4. = 10
17	803830	803842	803855	803868	803881	803893	803906	803919	803932	803944	803957	27	1" = 3
70	803983	803995	804008	804021	804034	804046	804059	804072	804085	804097	804110	26	2. = 5
23	804136	804148	804161	804174	804187	804199	804212	804225	804237	804250	804263	25	3. = 8
76	804288	804301	804314	804327	804339	804352	804365	804378	804390	804403	804416	24	4. = 10
28	804441	804454	804467	804479	804492	804505	804518	804530	804543	804556	804568	23	1" = 3
81	804594	804607	804619	804632	804645	804657	804670	804683	804696	804708	804721	22	2. = 5
34	804746	804759	804772	804785	804797	804810	804823	804835	804848	804861	804873	21	3. = 8
86	804899	804912	804924	804937	804950	804962	804975	804988	805000	805013	805026	20	4. = 10
39	805051	805064	805077	805089	805102	805115	805127	805140	805153	805165	805178	19	1" = 3
91	805204	805216	805229	805242	805254	805267	805280	805292	805305	805318	805330	18	2. = 5
43	805356	805368	805381	805394	805406	805419	805432	805445	805457	805470	805483	17	3. = 8
95	805508	805521	805533	805546	805559	805571	805584	805597	805609	805622	805635	16	4. = 10
47	805660	805673	805685	805698	805711	805723	805736	805749	805761	805774	805787	15	1" = 3
99	805812	805824	805837	805850	805862	805875	805888	805900	805913	805926	805939	14	2. = 5
151	805964	805976	805989	806002	806014	806027	806040	806052	806065	806077	806090	13	3. = 8
03	806115	806128	806141	806153	806166	806179	806191	806204	806217	806229	806242	12	4. = 10
54	806267	806280	806293	806305	806318	806330	806343	806356	806368	806381	806393	11	1" = 3
06	806419	806431	806444	806457	806469	806482	806494	806507	806520	806532	806545	10	2. = 5
58	806570	806583	806595	806608	806621	806633	806646	806658	806671	806684	806696	9	3. = 8
09	806722	806734	806747	806759	806772	806785	806797	806810	806822	806835	806848	8	4. = 10
60	806873	806885	806898	806911	806923	806936	806948	806961	806974	806986	806999	7	1" = 3
11	807024	807037	807049	807062	807074	807087	807100	807112	807125	807137	807150	6	2. = 5
63	807175	807188	807200	807213	807226	807238	807251	807263	807276	807288	807301	5	3. = 8
14	807326	807339	807351	807364	807377	807389	807402	807414	807427	807439	807452	4	4. = 10
65	807477	807490	807502	807515	807527	807540	807553	807565	807578	807590	807603	3	1" = 3
15	807628	807641	807653	807666	807678	807691	807703	807716	807729	807741	807754	2	2. = 5
66	807779	807791	807804	807816	807829	807842	807854	807867	807879	807892	807904	1	3. = 8
17	807930	807942	807955	807967	807980	807992	808005	808017	808030	808042	808055	0	4. = 10
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'		Minutes	Proport. parts.
Co-sine of 50 degrees, or Sine of 140 degrees.													

LOGARITHMIC SINES.

Sine of 40 degrees, or Co-sine of 130 degrees.													
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes
0	9.808068	808080	808093	808105	808118	808130	808143	808155	808168	808180	808193	808206	59
1	9.808218	808231	808243	808256	808268	808281	808293	808306	808318	808331	808343	808356	58
2	9.808368	808381	808394	808406	808419	808431	808444	808456	808469	808481	808494	808506	57
3	9.808510	808523	808535	808548	808560	808573	808585	808598	808610	808623	808635	808648	56
4	9.808669	808682	808694	808707	808719	808732	808744	808757	808769	808782	808794	808807	55
5	9.808819	808832	808844	808857	808869	808882	808894	808907	808919	808932	808944	808957	54
6	9.808969	808982	808994	809007	809019	809032	809044	809057	809069	809082	809094	809107	53
7	9.809110	809122	809135	809147	809160	809172	809185	809197	809210	809222	809235	809247	52
8	9.809269	809282	809294	809307	809319	809332	809344	809357	809369	809382	809394	809407	51
9	9.809419	809432	809444	809456	809469	809481	809494	809506	809519	809531	809544	809556	50
10	9.809569	809581	809594	809606	809619	809631	809643	809656	809668	809681	809693	809706	49
11	9.809718	809731	809743	809756	809768	809781	809793	809806	809818	809831	809843	809856	48
12	9.809868	809880	809893	809905	809918	809930	809943	809955	809968	809980	809992	810005	47
13	9.810017	810030	810042	810055	810067	810080	810092	810104	810117	810129	810142	810154	46
14	9.810167	810179	810192	810204	810216	810229	810241	810254	810266	810279	810291	810303	45
15	9.810316	810328	810341	810353	810366	810378	810391	810403	810415	810428	810440	810453	44
16	9.810465	810478	810490	810502	810515	810527	810540	810552	810565	810577	810590	810602	43
17	9.810614	810627	810639	810651	810664	810676	810689	810701	810714	810726	810738	810751	42
18	9.810763	810776	810788	810800	810813	810825	810838	810850	810863	810875	810887	810900	41
19	9.810912	810925	810937	810949	810962	810974	810987	810999	811011	811024	811036	811049	40
20	9.811061	811073	811086	811098	811111	811123	811135	811148	811160	811173	811185	811197	39
21	9.811210	811223	811235	811247	811259	811272	811284	811296	811309	811321	811334	811346	38
22	9.811358	811371	811383	811396	811408	811420	811433	811445	811457	811470	811482	811495	37
23	9.811507	811519	811532	811544	811556	811569	811581	811594	811606	811618	811631	811643	36
24	9.811655	811668	811680	811693	811705	811717	811730	811742	811755	811767	811779	811792	35
25	9.811804	811816	811829	811841	811853	811866	811878	811890	811903	811915	811927	811940	34
26	9.811952	811964	811977	811989	812002	812014	812026	812039	812051	812063	812076	812088	33
27	9.812100	812113	812125	812137	812150	812162	812174	812187	812199	812211	812224	812236	32
28	9.812248	812261	812273	812285	812298	812310	812322	812335	812347	812360	812372	812384	31
29	9.812397	812409	812421	812434	812446	812458	812470	812483	812495	812507	812520	812532	30
30	9.812544	812557	812569	812581	812594	812606	812618	812631	812643	812655	812668	812680	29
31	9.812692	812705	812717	812729	812742	812754	812766	812779	812791	812803	812815	812828	28
32	9.812840	812852	812865	812877	812889	812902	812914	812926	812939	812951	812963	812976	27
33	9.812988	813000	813012	813025	813037	813049	813062	813074	813086	813099	813111	813123	26
34	9.813135	813148	813160	813172	813185	813197	813209	813221	813234	813246	813258	813271	25
35	9.813283	813295	813308	813320	813332	813344	813357	813369	813381	813394	813406	813418	24
36	9.813430	813443	813455	813467	813480	813492	813504	813516	813529	813541	813553	813566	23
37	9.813578	813590	813602	813615	813627	813639	813651	813664	813676	813688	813700	813713	22
38	9.813725	813737	813750	813762	813774	813786	813799	813811	813823	813835	813848	813860	21
39	9.813872	813884	813897	813909	813921	813933	813946	813958	813970	813983	813995	814007	20
40	9.814019	814032	814044	814056	814068	814081	814093	814105	814117	814130	814142	814154	19
41	9.814166	814179	814191	814203	814215	814227	814240	814252	814264	814276	814289	814301	18
42	9.814313	814325	814338	814350	814362	814374	814387	814399	814411	814423	814436	814448	17
43	9.814460	814472	814484	814497	814509	814521	814533	814546	814558	814570	814582	814595	16
44	9.814607	814619	814631	814643	814656	814668	814680	814692	814705	814717	814729	814741	15
45	9.814753	814766	814778	814790	814802	814815	814827	814839	814851	814863	814876	814888	14
46	9.814900	814912	814924	814937	814949	814961	814973	814985	814998	815010	815022	815034	13
47	9.815046	815059	815071	815083	815095	815107	815120	815132	815144	815156	815168	815181	12
48	9.815193	815205	815217	815229	815242	815254	815266	815278	815290	815303	815315	815327	11
49	9.815339	815351	815364	815376	815388	815400	815412	815424	815437	815449	815461	815473	10
50	9.815485	815498	815510	815522	815534	815546	815558	815571	815583	815595	815607	815619	9
51	9.815632	815644	815656	815668	815680	815692	815705	815717	815729	815741	815753	815765	8
52	9.815778	815790	815802	815814	815826	815838	815851	815863	815875	815887	815899	815911	7
53	9.815924	815936	815948	815960	815972	815984	815997	816009	816021	816033	816045	816057	6
54	9.816069	816082	816094	816106	816118	816130	816142	816155	816167	816179	816191	816203	5
55	9.816215	816227	816240	816252	816264	816276	816288	816300	816312	816325	816337	816349	4
56	9.816361	816373	816385	816397	816410	816422	816434	816446	816458	816470	816482	816494	3
57	9.816507	816519	816531	816543	816555	816567	816579	816592	816604	816616	816628	816640	2
58	9.816655	816667	816679	816691	816703	816715	816727	816739	816751	816763	816775	816787	1
59	9.816798	816810	816822	816834	816846	816858	816870	816882	816894	816907	816919	816931	0
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes
Co-sine of 49 degrees, or Sine of 139 degrees.													

52	4	10													
103	818115	818130	818137	818145	818152	818159	818167	818175	818183	818190	818211	818223	818235	51	1 = 2
247	818260	818272	818284	818296	818308	818320	818332	818344	818356	818368	818380	818392	818404	50	2. 5
392	818404	818416	818428	818440	818452	818464	818476	818488	818500	818512	818524	818536	818548	49	3. 7
536	818548	818560	818572	818585	818597	818609	818621	818633	818645	818657	818669	818681	818693	48	4. 10
681	818693	818705	818717	818729	818741	818753	818765	818777	818789	818801	818813	818825	818837	47	1 = 2
825	818837	818849	818861	818873	818885	818897	818909	818921	818933	818945	818957	818969	818981	46	2. 5
969	818981	818993	819005	819017	819029	819041	819053	819065	819077	819089	819101	819113	819125	45	3. 7
113	819125	819137	819149	819161	819173	819185	819197	819209	819221	819233	819245	819257	819269	44	4. 10
257	819269	819281	819293	819305	819317	819329	819341	819353	819365	819377	819389	819401	819413	43	1 = 2
401	819413	819425	819437	819449	819461	819473	819485	819497	819509	819521	819533	819545	819557	42	2. 5
545	819557	819569	819581	819593	819605	819617	819629	819641	819653	819665	819677	819689	819701	41	3. 7
689	819701	819713	819725	819737	819749	819761	819773	819785	819797	819809	819821	819833	819845	40	4. 10
833	819845	819857	819869	819881	819893	819905	819917	819929	819941	819953	819965	819977	819989	39	1 = 2
976	819989	820001	820013	820025	820037	820049	820061	820073	820085	820097	820109	820121	820133	38	2. 5
120	820133	820145	820155	820167	820179	820191	820203	820215	820227	820239	820251	820263	820275	37	3. 7
263	820275	820287	820299	820311	820323	820335	820347	820359	820371	820383	820395	820407	820419	36	4. 10
406	820419	820430	820443	820454	820466	820478	820490	820502	820514	820526	820538	820550	820562	35	1 = 2
550	820562	820575	820585	820597	820609	820621	820633	820645	820657	820669	820681	820693	820705	34	2. 5
693	820705	820717	820729	820740	820752	820764	820776	820788	820800	820812	820824	820836	820848	33	3. 7
836	820848	820860	820872	820884	820895	820907	820919	820931	820943	820955	820967	820979	820991	32	4. 10
979	820991	821003	821015	821027	821038	821050	821062	821074	821086	821098	821110	821122	821134	31	1 = 2
122	821134	821146	821158	821169	821181	821193	821205	821217	821229	821241	821253	821265	821277	30	2. 5
265	821277	821288	821300	821312	821324	821336	821348	821360	821372	821384	821396	821408	821420	29	3. 7
407	821419	821431	821443	821455	821467	821479	821491	821502	821514	821526	821538	821550	821562	28	4. 10
553	821562	821574	821586	821598	821609	821621	821633	821645	821657	821669	821681	821693	821705	27	1 = 2
696	821704	821716	821728	821740	821752	821764	821776	821788	821800	821811	821823	821835	821847	26	2. 5
835	821847	821859	821871	821883	821894	821906	821918	821930	821942	821954	821966	821978	821990	25	3. 7
978	821989	822001	822013	822025	822037	822049	822061	822072	822084	822096	822108	822120	822132	24	4. 10
120	822132	822144	822155	822167	822179	822191	822203	822215	822227	822239	822250	822262	822274	23	1 = 2
262	822274	822286	822298	822310	822321	822333	822345	822357	822369	822381	822392	822404	822416	22	2. 5
404	822416	822428	822440	822452	822463	822475	822487	822499	822511	822523	822535	822547	822559	21	3. 7
546	822558	822570	822582	822594	822606	822617	822629	822641	822653	822665	822677	822689	822701	20	4. 10
688	822700	822712	822724	822736	822748	822759	822771	822783	822795	822807	822818	822830	822842	19	1 = 2
830	822842	822854	822866	822878	822889	822901	822913	822925	822937	822948	822960	822972	822984	18	2. 5
972	822984	822996	823008	823019	823031	823043	823055	823067	823078	823090	823102	823114	823126	17	3. 7
114	823126	823137	823149	823161	823173	823185	823197	823208	823220	823232	823244	823256	823268	16	4. 10
256	823267	823279	823291	823303	823315	823326	823338	823350	823362	823374	823385	823397	823409	15	1 = 2
397	823409	823421	823432	823444	823456	823468	823480	823491	823503	823515	823527	823539	823550	14	2. 5
539	823550	823562	823574	823586	823598	823609	823621	823633	823645	823656	823668	823680	823692	13	3. 7
680	823692	823704	823715	823727	823739	823751	823762	823774	823786	823798	823810	823822	823834	12	4. 10
821	823833	823845	823857	823868	823880	823892	823904	823916	823927	823939	823951	823963	823975	11	1 = 2
963	823974	823986	823998	824010	824021	824033	824045	824057	824068	824080	824092	824104	824116	10	2. 5
104	824116	824127	824139	824151	824163	824174	824186	824198	824210	824221	824233	824245	824257	9	3. 7
245	824257	824268	824280	824292	824304	824315	824327	824339	824351	824362	824374	824386	824398	8	4. 10
386	824398	824409	824421	824433	824445	824456	824468	824480	824492	824503	824515	824527	824539	7	1 = 2

LOGARITHMIC SINES.

Minutes	Sine of 42 degrees, or Co-sine of 132 degrees.												Minutes	Proport.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	9.825511	825523	825534	825546	825558	825569	825581	825593	825604	825616	825628	825640	59	1"
1	9.825651	825663	825675	825686	825698	825710	825721	825733	825745	825756	825768	825780	58	2.
2	9.825791	825803	825815	825826	825838	825850	825861	825873	825885	825896	825908	825920	57	3.
3	9.825931	825943	825955	825967	825978	825990	826001	826013	826025	826037	826048	826060	56	4.
4	9.826072	826083	826095	826107	826118	826130	826141	826153	826165	826176	826188	826200	55	1 =
5	9.826211	826223	826235	826246	826258	826270	826281	826293	826305	826316	826328	826340	54	2.
6	9.826351	826363	826375	826386	826398	826410	826421	826433	826444	826456	826468	826479	53	3.
7	9.826491	826503	826514	826526	826538	826549	826561	826573	826584	826596	826607	826619	52	4.
8	9.826631	826642	826654	826666	826677	826689	826701	826712	826724	826735	826747	826759	51	1 =
9	9.826770	826782	826794	826805	826817	826829	826840	826852	826863	826875	826887	826898	50	2.
10	9.826910	826922	826933	826945	826956	826968	826980	826991	827003	827014	827026	827038	49	3.
11	9.827049	827061	827073	827084	827096	827107	827119	827131	827142	827154	827165	827177	48	4.
12	9.827189	827200	827212	827224	827235	827247	827258	827270	827282	827293	827305	827316	47	1 =
13	9.827328	827340	827351	827363	827374	827386	827398	827409	827421	827432	827444	827456	46	2.
14	9.827467	827479	827490	827502	827514	827525	827537	827548	827560	827572	827583	827595	45	3.
15	9.827606	827618	827629	827641	827653	827664	827676	827687	827699	827711	827722	827734	44	4.
16	9.827745	827757	827769	827780	827792	827803	827815	827826	827838	827850	827861	827873	43	1 =
17	9.827884	827896	827907	827919	827931	827942	827954	827965	827977	827988	828000	828012	42	2.
18	9.828023	828035	828046	828058	828069	828081	828093	828104	828116	828127	828139	828150	41	3.
19	9.828162	828174	828185	828197	828208	828220	828231	828243	828254	828266	828278	828289	40	4.
20	9.828301	828312	828324	828335	828347	828358	828370	828382	828393	828405	828416	828428	39	1 =
21	9.828439	828451	828462	828474	828486	828497	828509	828520	828532	828543	828555	828566	38	2.
22	9.828578	828589	828601	828613	828624	828636	828647	828659	828670	828682	828693	828705	37	3.
23	9.828716	828728	828739	828751	828762	828774	828786	828797	828809	828820	828832	828843	36	4.
24	9.828855	828866	828878	828889	828901	828912	828924	828935	828947	828958	828970	828982	35	1 =
25	9.828993	829005	829016	829028	829039	829051	829062	829074	829085	829097	829108	829120	34	2.
26	9.829131	829143	829154	829166	829177	829189	829200	829212	829223	829235	829246	829258	33	3.
27	9.829269	829281	829292	829304	829315	829327	829338	829350	829361	829373	829384	829396	32	4.
28	9.829408	829419	829431	829442	829454	829465	829477	829488	829500	829511	829522	829534	31	1 =
29	9.829545	829557	829568	829580	829591	829603	829614	829626	829637	829649	829660	829672	30	2.
30	9.829683	829695	829706	829718	829729	829741	829752	829764	829775	829787	829798	829810	29	3.
31	9.829821	829833	829844	829856	829867	829879	829890	829902	829913	829925	829936	829948	28	4.
32	9.829959	829970	829982	829993	830005	830016	830028	830039	830051	830062	830074	830085	27	1 =
33	9.830097	830108	830120	830131	830143	830154	830165	830177	830188	830200	830211	830223	26	2.
34	9.830234	830246	830257	830269	830280	830292	830303	830314	830326	830337	830349	830360	25	3.
35	9.830372	830383	830395	830406	830418	830429	830440	830452	830463	830475	830486	830498	24	4.
36	9.830509	830521	830532	830543	830555	830566	830578	830589	830601	830612	830624	830635	23	1 =
37	9.830646	830658	830669	830681	830692	830704	830715	830727	830738	830749	830761	830772	22	2.
38	9.830784	830795	830807	830818	830829	830841	830852	830864	830875	830887	830898	830910	21	3.
39	9.830921	830933	830944	830955	830967	830978	830989	831001	831012	831024	831035	831047	20	4.
40	9.831058	831069	831081	831092	831104	831115	831127	831138	831149	831161	831172	831184	19	1 =
41	9.831195	831206	831218	831229	831241	831252	831264	831275	831286	831298	831309	831321	18	2.
42	9.831332	831343	831355	831366	831378	831389	831400	831412	831423	831435	831446	831458	17	3.
43	9.831469	831480	831492	831503	831514	831526	831537	831549	831560	831571	831583	831594	16	4.
44	9.831606	831617	831628	831640	831651	831663	831674	831685	831697	831708	831720	831731	15	1 =
45	9.831742	831754	831765	831777	831788	831799	831811	831822	831833	831845	831856	831868	14	2.
46	9.831879	831890	831902	831913	831925	831936	831947	831959	831970	831981	831993	832004	13	3.
47	9.832016	832027	832038	832050	832061	832072	832084	832095	832107	832118	832129	832141	12	4.
48	9.832152	832163	832175	832186	832197	832209	832220	832232	832243	832254	832266	832277	11	1 =
49	9.832288	832300	832311	832322	832334	832345	832357	832368	832379	832391	832402	832413	10	2.
50	9.832425	832436	832447	832459	832470	832481	832493	832504	832516	832527	832538	832550	9	3.
51	9.832561	832572	832584	832595	832606	832618	832629	832640	832652	832663	832674	832686	8	4.
52	9.832697	832708	832720	832731	832742	832754	832765	832776	832788	832799	832810	832822	7	1 =
53	9.832833	832844	832856	832867	832878	832890	832901	832912	832924	832935	832946	832958	6	2.
54	9.832969	832980	832992	833003	833014	833026	833037	833048	833060	833071	833082	833094	5	3.
55	9.833105	833116	833128	833139	833150	833162	833173	833184	833196	833207	833218	833230	4	4.
56	9.833241	833252	833263	833275	833286	833297	833309	833320	833331	833343	833354	833365	3	1 =
57	9.833377	833388	833399	833411	833422	833433	833444	833456	833467	833478	833490	833501	2	2.
58	9.833512	833524	833535	833546	833557	833569	833580	833591	833603	833614	833625	833637	1	3.
59	9.833648	833659	833670	833682	833693	833704	833716	833727	833738	833750	833761	833772	0	4.
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport.
Co-sine of 47 degrees, or Sine of 137 degrees.														

LOGARITHMIC SINES.

Sine of 43 degrees, or Co-sine of 133 degrees.											Minutes	Proport. parts.
	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'		
83	833795	833806	833817	833829	833840	833851	833862	833874	833885	833896	59	1" = 2
119	833930	833941	833953	833964	833975	833987	833998	834009	834020	834032	58	2. 5
54	834065	834077	834088	834099	834111	834122	834133	834144	834156	834167	57	3. 7
89	834201	834212	834223	834235	834246	834257	834268	834280	834291	834302	56	4. 9
25	834336	834347	834358	834370	834381	834392	834403	834415	834426	834437	55	1" = 2
60	834471	834482	834494	834505	834516	834527	834539	834550	834561	834572	54	2. 5
95	834606	834617	834629	834640	834651	834662	834674	834685	834696	834707	53	3. 7
30	834741	834752	834763	834775	834786	834797	834808	834820	834831	834842	52	4. 9
65	834876	834887	834898	834910	834921	834932	834943	834955	834966	834977	51	1" = 2
99	835011	835022	835033	835044	835056	835067	835078	835089	835100	835112	50	2. 5
34	835145	835157	835168	835179	835190	835202	835213	835224	835235	835246	49	3. 7
69	835280	835291	835302	835314	835325	835336	835347	835359	835370	835381	48	4. 9
03	835415	835426	835437	835448	835459	835471	835482	835493	835504	835515	47	1" = 2
38	835549	835560	835571	835583	835594	835605	835616	835627	835639	835650	46	2. 4
72	835685	835695	835706	835717	835728	835739	835751	835762	835773	835784	45	3. 7
07	835818	835829	835840	835851	835862	835874	835885	835896	835907	835919	44	4. 9
41	835955	835966	835977	835988	835999	836010	836021	836032	836043	836054	43	1" = 2
75	836086	836097	836108	836119	836131	836142	836153	836164	836176	836187	42	2. 4
09	836220	836231	836243	836254	836265	836276	836287	836299	836310	836321	41	3. 7
43	836354	836366	836377	836388	836399	836410	836421	836432	836444	836455	40	4. 9
77	836488	836499	836511	836522	836533	836544	836555	836566	836578	836589	39	1" = 2
11	836622	836633	836644	836655	836667	836678	836689	836700	836711	836722	38	2. 4
45	836756	836767	836778	836789	836800	836812	836823	836834	836845	836856	37	3. 7
78	836890	836901	836912	836923	836934	836945	836956	836967	836979	836990	36	4. 9
12	837023	837034	837045	837057	837068	837079	837090	837101	837112	837123	35	1" = 2
46	837157	837168	837179	837190	837201	837212	837224	837235	837246	837257	34	2. 4
79	837290	837301	837312	837324	837335	837346	837357	837368	837379	837390	33	3. 7
13	837424	837435	837446	837457	837468	837479	837490	837501	837513	837524	32	4. 9
46	837557	837568	837579	837590	837601	837612	837624	837635	837646	837657	31	1" = 2
79	837690	837701	837712	837723	837735	837746	837757	837768	837779	837790	30	2. 4
12	837823	837834	837846	837857	837868	837879	837890	837901	837912	837923	29	3. 7
45	837956	837967	837979	837990	838001	838012	838023	838034	838045	838056	28	4. 9
78	838089	838101	838112	838123	838134	838145	838156	838167	838178	838189	27	1" = 2
11	838222	838233	838245	838256	838267	838278	838289	838300	838311	838322	26	2. 4
44	838355	838366	838377	838388	838399	838411	838422	838433	838444	838455	25	3. 7
77	838488	838499	838510	838521	838532	838543	838554	838565	838576	838587	24	4. 9
10	838621	838632	838643	838654	838665	838676	838687	838698	838709	838720	23	1" = 2
42	838753	838764	838775	838786	838797	838809	838820	838831	838842	838853	22	2. 4
75	838886	838897	838908	838919	838930	838941	838952	838963	838974	838985	21	3. 7
07	839018	839029	839040	839051	839062	839073	839084	839096	839107	839118	20	4. 9
40	839151	839162	839173	839184	839195	839206	839217	839228	839239	839250	19	1" = 2
72	839283	839294	839305	839316	839327	839338	839349	839360	839371	839382	18	2. 4
04	839415	839426	839437	839448	839459	839470	839481	839492	839503	839514	17	3. 7
36	839547	839558	839569	839580	839591	839602	839613	839624	839635	839646	16	4. 9
68	839679	839690	839701	839712	839723	839734	839745	839756	839767	839778	15	1" = 2
00	839811	839822	839833	839844	839855	839866	839877	839888	839899	839910	14	2. 4
32	839943	839954	839965	839976	839987	839998	840009	840020	840031	840042	13	3. 7
64	840075	840086	840097	840108	840119	840130	840141	840152	840163	840174	12	4. 9
96	840207	840218	840229	840240	840251	840262	840273	840284	840295	840306	11	1" = 2
28	840339	840350	840361	840372	840383	840394	840404	840415	840426	840437	10	2. 4
59	840470	840481	840492	840503	840514	840525	840536	840547	840558	840569	9	3. 7
91	840602	840613	840624	840635	840646	840657	840668	840679	840689	840700	8	4. 9
22	840733	840744	840755	840766	840777	840788	840799	840810	840821	840832	7	1" = 2
54	840865	840876	840887	840897	840908	840919	840930	840941	840952	840963	6	2. 4
85	840996	841007	841018	841029	841040	841051	841062	841073	841083	841094	5	3. 7
16	841127	841138	841149	841160	841171	841182	841193	841204	841215	841226	4	4. 9
47	841258	841269	841280	841291	841302	841313	841324	841335	841346	841357	3	1" = 2
79	841389	841400	841411	841422	841433	841444	841455	841466	841477	841488	2	2. 4
10	841520	841531	841542	841553	841564	841575	841586	841597	841608	841619	1	3. 7
40	841651	841662	841673	841684	841695	841706	841717	841728	841739	841750	0	4. 9
	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	
Co-sine of 46 degrees, or Sine of 136 degrees.											Minutes	Proport. parts.

LOGARITHMIC SINES.

Sine of 44 degrees, or Co-sine of 134 degrees.																
Minutes.	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes.	Proper parts.		
0	9.841771	841782	841793	841804	841815	841826	841837	841848	841859	841869	841880	841891	59	1	=	
1	9.841902	841913	841924	841935	841946	841957	841967	841978	841989	842000	842011	842022	58	2	=	
2	9.842033	842044	842055	842065	842076	842087	842098	842109	842120	842131	842142	842153	57	3	=	
3	9.842163	842174	842185	842196	842207	842218	842229	842240	842250	842261	842272	842283	56	4	=	
4	9.842294	842305	842316	842327	842337	842348	842359	842370	842381	842392	842403	842414	55	5	=	
5	9.842424	842435	842446	842457	842468	842479	842490	842501	842511	842522	842533	842544	54	6	=	
6	9.842555	842566	842577	842587	842598	842609	842620	842631	842642	842653	842664	842675	53	7	=	
7	9.842685	842696	842707	842718	842729	842739	842750	842761	842772	842783	842794	842805	52	8	=	
8	9.842815	842826	842837	842848	842859	842870	842881	842891	842902	842913	842924	842935	51	9	=	
9	9.842946	842956	842967	842978	842989	843000	843011	843022	843032	843043	843054	843065	50	10	=	
10	9.843076	843087	843097	843108	843119	843130	843141	843152	843162	843173	843184	843195	49	11	=	
11	9.843206	843217	843227	843238	843249	843260	843271	843282	843292	843303	843314	843325	48	12	=	
12	9.843336	843347	843357	843368	843379	843390	843401	843411	843422	843433	843444	843455	47	13	=	
13	9.843466	843476	843487	843498	843509	843520	843530	843541	843552	843563	843574	843585	46	14	=	
14	9.843595	843606	843617	843628	843639	843649	843660	843671	843682	843693	843704	843714	45	15	=	
15	9.843725	843736	843747	843757	843768	843779	843790	843801	843812	843822	843833	843844	44	16	=	
16	9.843855	843866	843876	843887	843898	843909	843920	843930	843941	843952	843963	843973	43	17	=	
17	9.843984	843995	844006	844017	844027	844038	844049	844060	844071	844081	844092	844103	42	18	=	
18	9.844114	844125	844135	844146	844157	844168	844179	844189	844200	844211	844222	844232	41	19	=	
19	9.844243	844254	844265	844276	844286	844297	844308	844319	844329	844340	844351	844362	40	20	=	
20	9.844373	844383	844394	844405	844416	844426	844437	844448	844459	844470	844481	844491	39	21	=	
21	9.844502	844513	844523	844534	844545	844556	844566	844577	844588	844599	844609	844620	38	22	=	
22	9.844631	844642	844653	844663	844674	844685	844696	844706	844717	844728	844739	844749	37	23	=	
23	9.844760	844771	844782	844792	844803	844814	844825	844835	844846	844857	844868	844878	36	24	=	
24	9.844889	844900	844911	844921	844932	844943	844954	844964	844975	844986	844997	845007	35	25	=	
25	9.845018	845029	845040	845050	845061	845072	845083	845093	845104	845115	845126	845136	34	26	=	
26	9.845147	845158	845169	845179	845190	845201	845211	845222	845233	845244	845254	845265	33	27	=	
27	9.845276	845287	845297	845308	845319	845329	845340	845351	845362	845372	845383	845394	32	28	=	
28	9.845405	845416	845426	845437	845447	845458	845469	845480	845490	845501	845512	845523	31	29	=	
29	9.845533	845544	845555	845566	845576	845587	845598	845609	845619	845630	845640	845651	30	30	=	
30	9.845662	845673	845683	845694	845705	845715	845726	845737	845748	845758	845769	845780	29	31	=	
31	9.845790	845801	845812	845822	845833	845844	845855	845865	845876	845887	845897	845908	28	32	=	
32	9.845919	845930	845940	845951	845962	845972	845983	845994	846004	846015	846026	846036	27	33	=	
33	9.846047	846058	846069	846079	846090	846101	846111	846122	846133	846143	846154	846165	26	34	=	
34	9.846175	846186	846197	846208	846218	846229	846240	846250	846261	846272	846283	846293	25	35	=	
35	9.846304	846314	846325	846336	846346	846357	846368	846378	846389	846400	846410	846421	24	36	=	
36	9.846432	846443	846453	846464	846475	846485	846496	846507	846517	846528	846539	846549	23	37	=	
37	9.846560	846571	846581	846592	846603	846613	846624	846635	846645	846656	846667	846677	22	38	=	
38	9.846688	846699	846709	846720	846731	846741	846752	846763	846773	846784	846795	846805	21	39	=	
39	9.846816	846826	846837	846848	846858	846869	846880	846890	846901	846912	846922	846933	20	40	=	
40	9.846944	846954	846965	846976	846986	846997	847008	847018	847029	847040	847050	847061	19	41	=	
41	9.847071	847082	847093	847103	847114	847125	847135	847146	847157	847167	847178	847189	18	42	=	
42	9.847199	847210	847220	847231	847242	847252	847263	847274	847284	847295	847306	847316	17	43	=	
43	9.847327	847337	847348	847359	847369	847380	847391	847401	847412	847422	847433	847444	16	44	=	
44	9.847454	847465	847476	847486	847497	847507	847518	847529	847539	847550	847561	847571	15	45	=	
45	9.847582	847593	847603	847614	847624	847635	847646	847656	847667	847677	847688	847699	14	46	=	
46	9.847709	847720	847730	847741	847752	847762	847773	847783	847794	847805	847815	847826	13	47	=	
47	9.847837	847847	847858	847868	847879	847890	847900	847911	847922	847932	847943	847953	12	48	=	
48	9.847964	847974	847985	847996	848006	848017	848027	848038	848049	848059	848070	848080	11	49	=	
49	9.848091	848102	848112	848123	848133	848144	848155	848165	848176	848186	848197	848207	10	50	=	
50	9.848218	848229	848239	848250	848260	848271	848282	848292	848303	848313	848324	848335	9	51	=	
51	9.848345	848356	848366	848377	848387	848398	848409	848419	848430	848440	848451	848461	8	52	=	
52	9.848472	848483	848493	848504	848514	848525	848535	848546	848557	848567	848578	848588	7	53	=	
53	9.848599	848610	848620	848631	848641	848652	848662	848673	848683	848694	848705	848715	6	54	=	
54	9.848726	848736	848747	848757	848768	848779	848789	848800	848811	848821	848831	848842	5	55	=	
55	9.848852	848863	848874	848884	848895	848905	848916	848926	848937	848947	848958	848969	4	56	=	
56	9.848979	848990	849000	849011	849021	849032	849042	849053	849064	849074	849085	849095	3	57	=	
57	9.849106	849116	849127	849137	849148	849158	849169	849180	849190	849201	849211	849222	2	58	=	
58	9.849232	849243	849253	849264	849274	849285	849295	849306	849317	849327	849338	849348	1	59	=	
59	9.849359	849369	849380	849390	849401	849411	849422	849432	849443	849453	849464	849475	0	60	=	
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'				
Co-sine of 45 degrees, or Sine of 135 degrees.																
Minutes.													Minutes.	Proper parts.		

LOGARITHMIC SINES

Sine of 45 degrees, or Co-sine of 135 degrees.											Minutes	Proportional parts
	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	
485	849496	849506	849517	849527	849538	849548	849559	849569	849580	849590	849601	59 1' = 2
611	849622	849632	849643	849653	849664	849674	849685	849696	849706	849717	849727	58 2. 4
738	849748	849759	849769	849780	849790	849801	849811	849822	849832	849843	849853	57 3. 6
864	849874	849885	849895	849906	849916	849927	849937	849948	849958	849969	849979	56 4. 8
990	850000	850011	850021	850032	850042	850053	850063	850074	850084	850095	850105	55 1' = 2
116	850126	850137	850147	850158	850168	850179	850189	850200	850210	850221	850231	54 2. 4
242	850252	850263	850273	850284	850294	850305	850315	850326	850336	850347	850357	53 3. 6
368	850378	850389	850399	850410	850420	850430	850441	850451	850462	850472	850483	52 4. 8
493	850504	850514	850525	850535	850546	850556	850567	850577	850588	850598	850609	51 1' = 2
619	850630	850640	850650	850661	850671	850682	850692	850703	850713	850724	850734	50 2. 4
745	850755	850766	850776	850787	850797	850807	850818	850828	850839	850849	850860	49 3. 6
870	850881	850891	850902	850912	850923	850933	850943	850954	850964	850975	850985	48 4. 8
996	851006	851017	851027	851038	851048	851058	851069	851079	851090	851100	851111	47 1' = 2
121	851132	851142	851153	851163	851173	851184	851194	851205	851215	851226	851236	46 2. 4
247	851257	851267	851278	851288	851299	851309	851320	851330	851340	851351	851361	45 3. 6
372	851382	851393	851403	851414	851424	851434	851445	851455	851466	851476	851487	44 4. 8
497	851507	851518	851528	851539	851549	851560	851570	851580	851591	851601	851612	43 1' = 2
622	851633	851643	851653	851664	851674	851685	851695	851705	851716	851726	851737	42 2. 4
747	851758	851768	851778	851789	851799	851810	851820	851830	851841	851851	851862	41 3. 6
872	851883	851893	851903	851914	851924	851935	851945	851955	851966	851976	851987	40 4. 8
997	852007	852018	852028	852039	852049	852059	852070	852080	852091	852101	852111	39 1' = 2
122	852132	852142	852153	852163	852174	852184	852195	852205	852215	852226	852236	38 2. 4
247	852257	852267	852278	852288	852299	852309	852319	852330	852340	852351	852361	37 3. 6
371	852382	852392	852402	852413	852423	852434	852444	852454	852465	852475	852486	36 4. 8
496	852506	852517	852527	852537	852548	852558	852569	852579	852589	852600	852610	35 1' = 2
620	852631	852641	852652	852662	852672	852683	852693	852703	852714	852724	852735	34 2. 4
745	852755	852766	852776	852786	852797	852807	852818	852828	852838	852849	852859	33 3. 6
869	852880	852890	852900	852911	852921	852932	852942	852952	852963	852973	852983	32 4. 8
994	853004	853014	853025	853035	853045	853056	853066	853077	853087	853097	853108	31 1' = 2
118	853128	853139	853149	853159	853170	853180	853190	853201	853211	853221	853232	30 2. 4
242	853253	853263	853273	853283	853294	853304	853315	853325	853335	853346	853356	29 3. 6
366	853377	853387	853397	853408	853418	853428	853439	853449	853459	853470	853480	28 4. 8
490	853501	853511	853521	853532	853542	853552	853563	853573	853583	853594	853604	27 1' = 2
614	853625	853635	853645	853656	853666	853676	853686	853697	853707	853717	853728	26 2. 4
738	853748	853759	853769	853779	853790	853800	853810	853821	853831	853841	853852	25 3. 6
862	853872	853883	853893	853903	853913	853924	853934	853944	853955	853965	853975	24 4. 8
986	853996	854006	854017	854027	854037	854048	854058	854068	854078	854089	854099	23 1' = 2
109	854120	854130	854140	854151	854161	854171	854181	854192	854202	854212	854223	22 2. 4
233	854243	854254	854264	854274	854284	854295	854305	854315	854326	854336	854346	21 3. 6
356	854367	854377	854387	854398	854408	854418	854429	854439	854449	854459	854470	20 4. 8
480	854490	854501	854511	854521	854531	854542	854552	854562	854573	854583	854593	19 1' = 2
603	854614	854624	854634	854644	854655	854665	854675	854686	854696	854706	854716	18 2. 4
727	854737	854747	854757	854768	854778	854788	854799	854809	854819	854829	854840	17 3. 6
850	854860	854870	854881	854891	854901	854911	854922	854932	854942	854953	854963	16 4. 8
973	854983	854994	855004	855014	855024	855035	855045	855055	855065	855076	855086	15 1' = 2
296	855106	855117	855127	855137	855147	855158	855168	855178	855188	855199	855209	14 2. 4
419	855229	855240	855250	855260	855270	855281	855291	855301	855311	855322	855332	13 3. 6
542	855352	855363	855373	855383	855393	855404	855414	855424	855434	855445	855455	12 4. 8
665	855475	855486	855496	855506	855516	855526	855537	855547	855557	855567	855578	11 1' = 2
788	855598	855608	855619	855629	855639	855649	855659	855670	855680	855690	855700	10 2. 4
911	855721	855731	855741	855752	855762	855772	855782	855792	855803	855813	855823	9 3. 6
33	855844	855854	855864	855874	855884	855895	855905	855915	855925	855935	855946	8 4. 8
956	855966	855976	855987	855997	856007	856017	856027	856038	856048	856058	856068	7 1' = 2
278	856089	856099	856109	856119	856129	856140	856150	856160	856170	856180	856191	6 2. 4
401	856211	856221	856231	856242	856252	856262	856272	856282	856293	856303	856313	5 3. 6
523	856333	856344	856354	856364	856374	856384	856395	856405	856415	856425	856435	4 4. 8
646	856456	856466	856476	856486	856497	856507	856517	856527	856537	856547	856558	3 1' = 2
768	856578	856588	856598	856609	856619	856629	856639	856649	856659	856670	856680	2 2. 4
890	856700	856710	856721	856731	856741	856751	856761	856771	856782	856792	856802	1 3. 6
912	856822	856832	856843	856853	856863	856873	856883	856893	856904	856914	856924	0 4. 8
	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes
Co-sine of 44 degrees, or Sine of 134 degrees.												Proportional parts

LOGARITHMIC SINES.

Minutes	Sine of 46 degrees, or Co-sine of 136 degrees.												Minutes	Propor. Parts.
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
0	9.856934	856944	856954	856965	856975	856985	856995	857005	857015	857026	857036	857046	59	1 = 1
1	9.857056	857066	857076	857087	857097	857107	857117	857127	857137	857148	857158	857168	58	2 = 1
2	9.857178	857188	857198	857208	857219	857229	857239	857249	857259	857269	857280	857290	57	3 = 1
3	9.857300	857310	857320	857330	857340	857351	857361	857371	857381	857391	857401	857411	56	4 = 1
4	9.857422	857432	857442	857452	857462	857472	857482	857493	857503	857513	857523	857533	55	1 = 2
5	9.857543	857553	857564	857574	857584	857594	857604	857614	857624	857634	857645	857655	54	2 = 2
6	9.857665	857675	857685	857695	857705	857715	857726	857736	857746	857756	857766	857776	53	3 = 2
7	9.857786	857797	857807	857817	857827	857837	857847	857857	857867	857877	857888	857898	52	4 = 2
8	9.857908	857918	857928	857938	857948	857958	857969	857979	857989	857999	858009	858019	51	1 = 3
9	9.858029	858039	858049	858060	858070	858080	858090	858100	858110	858120	858130	858140	50	2 = 3
10	9.858151	858161	858171	858181	858191	858201	858211	858221	858231	858241	858252	858262	49	3 = 3
11	9.858272	858282	858292	858302	858312	858322	858332	858343	858353	858363	858373	858383	48	4 = 3
12	9.858393	858403	858413	858423	858433	858443	858454	858464	858474	858484	858494	858504	47	1 = 4
13	9.858514	858524	858534	858544	858554	858565	858575	858585	858595	858605	858615	858625	46	2 = 4
14	9.858635	858645	858655	858665	858675	858686	858696	858706	858716	858726	858736	858746	45	3 = 4
15	9.858756	858766	858776	858786	858796	858807	858817	858827	858837	858847	858857	858867	44	4 = 4
16	9.858877	858887	858897	858907	858917	858927	858937	858948	858958	858968	858978	858988	43	1 = 5
17	9.858998	859008	859018	859028	859038	859048	859058	859068	859078	859088	859098	859109	42	2 = 5
18	9.859119	859129	859139	859149	859159	859169	859179	859189	859199	859209	859219	859229	41	3 = 5
19	9.859239	859249	859259	859269	859280	859290	859300	859310	859320	859330	859340	859350	40	4 = 5
20	9.859360	859370	859380	859390	859400	859410	859420	859430	859440	859450	859460	859470	39	1 = 6
21	9.859480	859491	859501	859511	859521	859531	859541	859551	859561	859571	859581	859591	38	2 = 6
22	9.859601	859611	859621	859631	859641	859651	859661	859671	859681	859691	859701	859711	37	3 = 6
23	9.859721	859731	859741	859751	859761	859772	859782	859792	859802	859812	859822	859832	36	4 = 6
24	9.859842	859852	859862	859872	859882	859892	859902	859912	859922	859932	859942	859952	35	1 = 7
25	9.859962	859972	859982	859992	860002	860012	860022	860032	860042	860052	860062	860072	34	2 = 7
26	9.860082	860092	860102	860112	860122	860132	860142	860152	860162	860172	860182	860192	33	3 = 7
27	9.860202	860212	860222	860232	860242	860252	860262	860272	860282	860292	860302	860312	32	4 = 7
28	9.860322	860332	860342	860352	860362	860372	860382	860392	860402	860412	860422	860432	31	1 = 8
29	9.860442	860452	860462	860472	860482	860492	860502	860512	860522	860532	860542	860552	30	2 = 8
30	9.860562	860572	860582	860592	860602	860612	860622	860632	860642	860652	860662	860672	29	3 = 8
31	9.860682	860692	860702	860712	860722	860732	860742	860752	860762	860772	860782	860792	28	4 = 8
32	9.860802	860812	860822	860832	860842	860852	860862	860872	860882	860892	860902	860912	27	1 = 9
33	9.860922	860932	860942	860952	860961	860971	860981	860991	861001	861011	861021	861031	26	2 = 9
34	9.861041	861051	861061	861071	861081	861091	861101	861111	861121	861131	861141	861151	25	3 = 9
35	9.861161	861171	861181	861191	861201	861211	861221	861231	861240	861250	861260	861270	24	4 = 9
36	9.861280	861290	861300	861310	861320	861330	861340	861350	861360	861370	861380	861390	23	1 = 10
37	9.861400	861410	861420	861430	861440	861450	861460	861470	861480	861490	861500	861510	22	2 = 10
38	9.861519	861529	861539	861549	861559	861569	861579	861589	861599	861609	861619	861628	21	3 = 10
39	9.861638	861648	861658	861668	861678	861688	861698	861708	861718	861728	861738	861748	20	4 = 10
40	9.861758	861768	861777	861787	861797	861807	861817	861827	861837	861847	861857	861867	19	1 = 11
41	9.861877	861887	861897	861907	861916	861926	861936	861946	861956	861966	861976	861986	18	2 = 11
42	9.861996	862006	862016	862026	862036	862045	862055	862065	862075	862085	862095	862105	17	3 = 11
43	9.862115	862125	862135	862145	862155	862164	862174	862184	862194	862204	862214	862224	16	4 = 11
44	9.862234	862244	862254	862264	862273	862283	862293	862303	862313	862323	862333	862343	15	1 = 12
45	9.862353	862363	862372	862382	862392	862402	862412	862422	862432	862442	862452	862462	14	2 = 12
46	9.862471	862481	862491	862501	862511	862521	862531	862541	862551	862561	862570	862580	13	3 = 12
47	9.862590	862600	862610	862620	862630	862640	862650	862660	862670	862680	862690	862700	12	4 = 12
48	9.862709	862719	862729	862739	862748	862758	862768	862778	862788	862798	862808	862818	11	1 = 13
49	9.862827	862837	862847	862857	862867	862877	862887	862897	862907	862916	862926	862936	10	2 = 13
50	9.862946	862956	862966	862976	862986	862995	863005	863015	863025	863035	863045	863055	9	3 = 13
51	9.863064	863074	863084	863094	863104	863114	863124	863134	863143	863153	863163	863173	8	4 = 13
52	9.863183	863193	863203	863212	863222	863232	863242	863252	863262	863272	863281	863291	7	1 = 14
53	9.863301	863311	863321	863331	863341	863350	863360	863370	863380	863390	863400	863410	6	2 = 14
54	9.863419	863429	863439	863449	863459	863469	863479	863488	863498	863508	863518	863528	5	3 = 14
55	9.863538	863547	863557	863567	863577	863587	863597	863607	863616	863626	863636	863646	4	4 = 14
56	9.863656	863666	863675	863685	863695	863705	863715	863725	863734	863744	863754	863764	3	1 = 15
57	9.863774	863784	863793	863803	863813	863823	863833	863843	863852	863862	863872	863882	2	2 = 15
58	9.863892	863902	863911	863921	863931	863941	863951	863961	863970	863980	863990	864000	1	3 = 15
59	9.864010	864019	864029	864039	864049	864059	864069	864078	864088	864098	864108	864118	0	4 = 15
Minutes	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Propor. Parts.
Co-sine of 43 degrees, or Sine of 133 degrees.														

LOGARITHMIC SINES.

Sine of 47 degrees, or Co-sine of 137 degrees.											Minutes	Proport. parts.
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	
1128	864137	864147	864157	864167	864177	864186	864196	864206	864216	864226	864235	59 1" = 2
1245	864255	864265	864275	864285	864294	864304	864314	864324	864334	864343	864353	58 2. 4
1363	864373	864383	864392	864402	864412	864422	864432	864441	864451	864461	864471	57 3. 6
1481	864490	864500	864510	864520	864530	864539	864549	864559	864569	864579	864588	56 4. 8
1598	864608	864618	864628	864637	864647	864657	864667	864677	864686	864696	864706	55 1. 2
1716	864725	864735	864745	864755	864765	864774	864784	864794	864804	864814	864823	54 2. 4
1833	864843	864853	864862	864872	864882	864892	864902	864911	864921	864931	864941	53 3. 6
1950	864960	864970	864980	864990	865000	865009	865019	865029	865038	865048	865058	52 4. 8
2068	865078	865087	865097	865107	865117	865126	865136	865146	865156	865166	865175	51 1. 2
2185	865195	865205	865214	865224	865234	865244	865253	865263	865273	865283	865292	50 2. 4
2302	865312	865322	865331	865341	865351	865361	865370	865380	865390	865400	865409	49 3. 6
2419	865429	865439	865448	865458	865468	865478	865487	865497	865507	865517	865526	48 4. 8
2536	865546	865556	865565	865575	865585	865595	865604	865614	865624	865634	865643	47 1. 2
2653	865663	865673	865682	865692	865702	865712	865721	865731	865741	865751	865760	46 2. 4
2770	865780	865790	865800	865810	865820	865830	865840	865850	865860	865870	865879	45 3. 6
2887	865899	865909	865919	865929	865939	865949	865959	865969	865979	865989	865999	44 4. 8
3004	866019	866029	866039	866049	866059	866069	866079	866089	866099	866109	866119	43 1. 2
3121	866139	866149	866159	866169	866179	866189	866199	866209	866219	866229	866239	42 2. 4
3238	866249	866259	866269	866279	866289	866299	866309	866319	866329	866339	866349	41 3. 6
3355	866363	866373	866383	866392	866402	866412	866421	866431	866441	866451	866460	40 4. 8
3472	866480	866490	866500	866510	866520	866530	866540	866550	866560	866570	866579	39 1. 2
3589	866599	866609	866619	866629	866639	866649	866659	866669	866679	866689	866699	38 2. 4
3706	866712	866722	866732	866742	866752	866762	866772	866782	866792	866802	866811	37 3. 6
3823	866829	866839	866849	866859	866869	866879	866889	866899	866909	866919	866929	36 4. 8
3940	866949	866959	866969	866979	866989	866999	867009	867019	867029	867039	867049	35 1. 2
4057	867061	867071	867081	867091	867101	867111	867121	867131	867141	867151	867161	34 2. 4
4174	867177	867187	867197	867207	867217	867227	867237	867247	867257	867267	867277	33 3. 6
4291	867293	867303	867313	867323	867333	867343	867353	867363	867373	867383	867393	32 4. 8
4408	867409	867419	867429	867439	867449	867459	867469	867479	867489	867499	867509	31 1. 2
4525	867525	867535	867545	867555	867565	867575	867585	867595	867605	867615	867625	30 2. 4
4642	867641	867651	867661	867671	867681	867691	867701	867711	867721	867731	867741	29 3. 6
4759	867756	867766	867776	867786	867796	867806	867816	867826	867836	867846	867856	28 4. 8
4876	867872	867882	867892	867902	867912	867922	867932	867942	867952	867962	867972	27 1. 2
4993	867988	867998	868008	868018	868028	868038	868048	868058	868068	868078	868088	26 2. 4
5110	868103	868113	868123	868133	868143	868153	868163	868173	868183	868193	868203	25 3. 6
5227	868219	868229	868239	868249	868259	868269	868279	868289	868299	868309	868319	24 4. 8
5344	868334	868344	868354	868364	868374	868384	868394	868404	868414	868424	868434	23 1. 2
5461	868449	868459	868469	868479	868489	868499	868509	868519	868529	868539	868549	22 2. 4
5578	868564	868574	868584	868594	868604	868614	868624	868634	868644	868654	868664	21 3. 6
5695	868680	868690	868700	868710	868720	868730	868740	868750	868760	868770	868780	20 4. 8
5812	868795	868805	868815	868825	868835	868845	868855	868865	868875	868885	868895	19 1. 2
5929	868910	868920	868930	868940	868950	868960	868970	868980	868990	869000	869010	18 2. 4
6046	869025	869035	869045	869055	869065	869075	869085	869095	869105	869115	869125	17 3. 6
6163	869140	869150	869160	869170	869180	869190	869200	869210	869220	869230	869240	16 4. 8
6280	869255	869265	869275	869285	869295	869305	869315	869325	869335	869345	869355	15 1. 2
6397	869369	869379	869389	869399	869409	869419	869429	869439	869449	869459	869469	14 2. 4
6514	869484	869494	869504	869514	869524	869534	869544	869554	869564	869574	869584	13 3. 6
6631	869599	869609	869619	869629	869639	869649	869659	869669	869679	869689	869699	12 4. 8
6748	869713	869723	869733	869743	869753	869763	869773	869783	869793	869803	869813	11 1. 2
6865	869828	869838	869848	869858	869868	869878	869888	869898	869908	869918	869928	10 2. 4
6982	869943	869953	869963	869973	869983	869993	870003	870013	870023	870033	870043	9 3. 6
7099	870058	870068	870078	870088	870098	870108	870118	870128	870138	870148	870158	8 4. 8
7216	870171	870181	870191	870201	870211	870221	870231	870241	870251	870261	870271	7 1. 2
7333	870285	870295	870305	870315	870325	870335	870345	870355	870365	870375	870385	6 2. 4
7450	870399	870409	870419	870429	870439	870449	870459	870469	870479	870489	870499	5 3. 6
7567	870513	870523	870533	870543	870553	870563	870573	870583	870593	870603	870613	4 4. 8
7684	870627	870637	870647	870657	870667	870677	870687	870697	870707	870717	870727	3 1. 2
7801	870741	870751	870761	870771	870781	870791	870801	870811	870821	870831	870841	2 2. 4
7918	870855	870865	870875	870885	870895	870905	870915	870925	870935	870945	870955	1 3. 6
8035	870969	870979	870989	870999	871009	871019	871029	871039	871049	871059	871069	0 4. 8
	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes
Co-sine of 42 degrees, or Sine of 132 degrees.												Proport. parts.

LOGARITHMIC SINES.

Minute	Sine of 48 degrees, or Co-sine of 138 degrees.												Minute	Prop. part.
	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
0	9.871074	871083	871092	871102	871111	871121	871130	871140	871149	871159	871168	871178	50	1 = 2
1	9.871187	871197	871206	871216	871225	871235	871244	871254	871263	871272	871282	871291	51	2 = 4
2	9.871301	871310	871320	871329	871339	871348	871358	871367	871377	871386	871396	871405	52	3 = 6
3	9.871414	871424	871433	871443	871452	871462	871471	871481	871490	871500	871509	871519	53	4 = 8
4	9.871528	871537	871547	871556	871566	871575	871585	871594	871604	871613	871623	871632	54	1 = 2
5	9.871641	871651	871660	871670	871679	871689	871698	871708	871717	871726	871736	871745	55	2 = 4
6	9.871755	871764	871774	871783	871793	871802	871811	871821	871830	871840	871849	871859	56	3 = 6
7	9.871868	871878	871887	871896	871906	871915	871925	871934	871944	871953	871963	871972	57	4 = 8
8	9.871981	871991	872000	872010	872019	872029	872038	872047	872057	872066	872076	872085	58	1 = 2
9	9.872095	872104	872113	872123	872132	872142	872151	872161	872170	872179	872189	872198	59	2 = 4
10	9.872208	872217	872227	872236	872245	872255	872264	872274	872283	872292	872302	872311	40	3 = 6
11	9.872321	872330	872340	872349	872358	872368	872377	872387	872396	872405	872415	872424	41	4 = 8
12	9.872434	872443	872453	872462	872471	872481	872490	872500	872509	872518	872528	872537	42	1 = 2
13	9.872547	872556	872565	872575	872584	872594	872603	872612	872622	872631	872641	872650	43	2 = 4
14	9.872659	872668	872678	872688	872697	872706	872716	872725	872735	872744	872753	872763	44	3 = 6
15	9.872772	872782	872791	872800	872810	872819	872829	872838	872847	872857	872866	872876	45	4 = 8
16	9.872885	872894	872904	872913	872923	872932	872941	872951	872960	872969	872979	872988	46	1 = 2
17	9.872998	873007	873016	873026	873035	873045	873054	873063	873073	873082	873091	873101	47	2 = 4
18	9.873110	873120	873129	873138	873148	873157	873167	873176	873185	873195	873204	873213	48	3 = 6
19	9.873223	873232	873242	873251	873260	873270	873279	873288	873298	873307	873316	873326	49	4 = 8
20	9.873335	873345	873354	873363	873373	873382	873391	873401	873410	873420	873429	873438	39	1 = 2
21	9.873448	873457	873466	873476	873485	873494	873504	873513	873523	873532	873541	873551	38	2 = 4
22	9.873560	873569	873579	873588	873597	873607	873616	873625	873635	873644	873654	873663	37	3 = 6
23	9.873672	873682	873691	873700	873710	873719	873728	873738	873747	873756	873766	873775	36	4 = 8
24	9.873784	873794	873803	873812	873822	873831	873840	873850	873859	873869	873878	873887	35	1 = 2
25	9.873897	873906	873915	873925	873934	873943	873953	873962	873971	873981	873990	873999	34	2 = 4
26	9.874009	874018	874027	874037	874046	874055	874065	874074	874083	874093	874102	874111	33	3 = 6
27	9.874121	874130	874139	874149	874158	874167	874177	874186	874195	874205	874214	874223	32	4 = 8
28	9.874233	874242	874251	874260	874270	874279	874288	874298	874307	874316	874326	874335	31	1 = 2
29	9.874344	874354	874363	874372	874382	874391	874400	874410	874419	874428	874438	874447	30	2 = 4
30	9.874456	874466	874475	874484	874493	874503	874512	874521	874531	874540	874549	874559	29	3 = 6
31	9.874568	874577	874587	874596	874605	874614	874624	874633	874642	874652	874661	874670	28	4 = 8
32	9.874680	874689	874698	874708	874717	874726	874735	874745	874754	874763	874773	874782	27	1 = 2
33	9.874791	874801	874810	874819	874828	874838	874847	874856	874866	874875	874884	874893	26	2 = 4
34	9.874903	874912	874921	874931	874940	874949	874958	874968	874977	874986	874996	875005	25	3 = 6
35	9.875014	875024	875033	875042	875051	875061	875070	875079	875088	875098	875107	875116	24	4 = 8
36	9.875126	875135	875144	875153	875163	875172	875181	875191	875200	875209	875218	875228	23	1 = 2
37	9.875237	875246	875255	875265	875274	875283	875293	875302	875311	875320	875330	875339	22	2 = 4
38	9.875348	875358	875367	875376	875385	875395	875404	875413	875422	875432	875441	875450	21	3 = 6
39	9.875459	875469	875478	875487	875497	875506	875515	875524	875534	875543	875552	875561	20	4 = 8
40	9.875571	875580	875589	875598	875608	875617	875626	875635	875645	875654	875663	875672	19	1 = 2
41	9.875682	875691	875700	875709	875719	875728	875737	875746	875756	875765	875774	875783	18	2 = 4
42	9.875793	875802	875811	875820	875830	875839	875848	875857	875867	875876	875885	875894	17	3 = 6
43	9.875904	875913	875922	875931	875941	875950	875959	875968	875978	875987	875996	876005	16	4 = 8
44	9.876015	876024	876033	876042	876051	876061	876070	876079	876088	876098	876107	876116	15	1 = 2
45	9.876125	876135	876144	876153	876162	876172	876181	876190	876199	876208	876218	876227	14	2 = 4
46	9.876236	876245	876255	876264	876273	876282	876291	876301	876310	876319	876328	876338	13	3 = 6
47	9.876347	876356	876365	876374	876384	876393	876402	876411	876421	876430	876439	876448	12	4 = 8
48	9.876457	876467	876476	876485	876494	876504	876513	876522	876531	876540	876550	876559	11	1 = 2
49	9.876568	876577	876586	876596	876605	876614	876623	876632	876642	876651	876660	876669	10	2 = 4
50	9.876679	876688	876697	876706	876715	876725	876734	876743	876752	876761	876771	876780	9	3 = 6
51	9.876789	876798	876807	876817	876826	876835	876844	876853	876863	876872	876881	876890	8	4 = 8
52	9.876899	876908	876918	876927	876936	876945	876954	876964	876973	876982	876991	877000	7	1 = 2
53	9.877010	877019	877028	877037	877046	877056	877065	877074	877083	877092	877101	877111	6	2 = 4
54	9.877120	877129	877138	877147	877157	877166	877175	877184	877193	877202	877212	877221	5	3 = 6
55	9.877230	877239	877248	877258	877267	877276	877285	877294	877303	877313	877322	877331	4	4 = 8
56	9.877340	877349	877358	877368	877377	877386	877395	877404	877413	877423	877432	877441	3	1 = 2
57	9.877450	877459	877468	877478	877487	877496	877505	877514	877523	877533	877542	877551	2	2 = 4
58	9.877560	877569	877578	877588	877597	877606	877615	877624	877633	877643	877652	877661	1	3 = 6
59	9.877670	877679	877688	877698	877707	877716	877725	877734	877743	877752	877762	877771	0	4 = 8
Minute	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minute	Prop. part.
Co-sine of 41 degrees, or Sine of 131 degrees.														

LOGARITHMIC SINES.

Sine of 49 degrees, or Co-sine of 139 degrees.											Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
780	77789	77798	77807	77817	77826	77835	77844	77853	77862	77871	59	1 = 2
890	777899	777908	777917	777926	777935	777945	777954	777963	777972	777981	58	2. 4
999	778009	778018	778027	778036	778045	778054	778063	778073	778082	778091	57	3. 5
109	778118	778127	778136	778146	778155	778164	778173	778182	778191	778200	56	4. 7
219	778228	778237	778246	778255	778264	778273	778283	778292	778301	778310	55	1 = 2
328	778337	778346	778356	778365	778374	778383	778392	778401	778410	778420	54	2. 4
438	778447	778456	778465	778474	778483	778492	778501	778511	778520	778530	53	3. 5
547	778556	778565	778574	778584	778593	778602	778611	778620	778630	778640	52	4. 7
656	778666	778675	778684	778693	778702	778711	778720	778730	778738	778747	51	1 = 2
766	778775	778784	778793	778802	778811	778820	778830	778838	778848	778857	50	2. 4
875	778884	778893	778902	778911	778920	778930	778939	778948	778957	778966	49	3. 5
984	778993	779002	779011	779020	779029	779039	779048	779057	779066	779075	48	4. 7
993	779102	779111	779120	779129	779139	779148	779157	779166	779175	779184	47	1 = 2
202	779211	779220	779229	779238	779248	779257	779266	779275	779284	779293	46	2. 4
311	779320	779329	779338	779347	779356	779366	779375	779384	779393	779402	45	3. 5
420	779429	779438	779447	779456	779465	779474	779483	779492	779502	779511	44	4. 7
529	779538	779547	779556	779565	779574	779583	779592	779601	779610	779620	43	1 = 2
638	779647	779656	779665	779674	779683	779692	779701	779710	779719	779728	42	2. 4
746	779755	779764	779773	779782	779791	779801	779810	779819	779828	779837	41	3. 5
855	779864	779873	779882	779891	779900	779909	779918	779927	779936	779945	40	4. 7
963	779973	779982	779991	780000	780009	780018	780027	780036	780045	780054	39	1 = 2
272	780081	780090	780099	780108	780117	780126	780135	780144	780153	780162	38	2. 4
380	780189	780198	780207	780216	780225	780235	780244	780253	780262	780271	37	3. 5
489	780298	780307	780316	780325	780334	780343	780352	780361	780370	780379	36	4. 7
597	780406	780415	780424	780433	780442	780451	780460	780469	780478	780487	35	1 = 2
705	780514	780523	780532	780541	780550	780559	780568	780577	780586	780595	34	2. 4
813	780622	780631	780641	780650	780659	780668	780677	780686	780695	780704	33	3. 5
922	780731	780740	780749	780758	780767	780776	780785	780794	780803	780812	32	4. 7
30	780839	780848	780857	780866	780875	780884	780893	780902	780911	780920	31	1 = 2
138	780947	780956	780965	780974	780983	780992	781001	781010	781019	781028	30	2. 4
246	781055	781064	781073	781082	781091	781100	781108	781117	781126	781135	29	3. 5
353	781162	781171	781180	781189	781198	781207	781216	781225	781234	781243	28	4. 7
461	781270	781279	781288	781297	781306	781315	781324	781333	781342	781351	27	1 = 2
569	781378	781387	781396	781405	781414	781423	781432	781441	781450	781459	26	2. 4
677	781486	781495	781504	781513	781521	781530	781539	781548	781557	781566	25	3. 5
784	781593	781602	781611	781620	781629	781638	781647	781656	781665	781674	24	4. 7
892	781701	781710	781719	781728	781737	781746	781755	781763	781772	781781	23	1 = 2
999	781808	781817	781826	781835	781844	781853	781862	781871	781880	781889	22	2. 4
107	781916	781925	781934	781943	781951	781960	781969	781978	781987	781996	21	3. 5
214	782023	782032	782041	782050	782059	782068	782077	782086	782095	782103	20	4. 7
321	782130	782139	782148	782157	782166	782175	782184	782193	782202	782211	19	1 = 2
429	782238	782246	782255	782264	782273	782282	782291	782300	782309	782318	18	2. 4
536	782345	782354	782363	782371	782380	782389	782398	782407	782416	782425	17	3. 5
643	782452	782461	782470	782479	782487	782496	782505	782514	782523	782532	16	4. 7
750	782559	782568	782577	782586	782594	782603	782612	782621	782630	782639	15	1 = 2
857	782666	782675	782684	782693	782701	782710	782719	782728	782737	782746	14	2. 4
964	782773	782782	782791	782800	782808	782817	782826	782835	782844	782853	13	3. 5
1071	782880	782889	782897	782906	782915	782924	782933	782942	782951	782960	12	4. 7
177	782986	782995	783004	783013	783022	783031	783040	783049	783057	783066	11	1 = 2
284	783093	783102	783111	783120	783129	783138	783146	783155	783164	783173	10	2. 4
391	783200	783209	783217	783226	783235	783244	783253	783262	783271	783280	9	3. 5
497	783306	783315	783324	783333	783342	783351	783360	783368	783377	783386	8	4. 7
604	783413	783422	783431	783439	783448	783457	783466	783475	783484	783493	7	1 = 2
710	783519	783528	783537	783546	783555	783564	783573	783581	783590	783599	6	2. 4
817	783626	783635	783643	783652	783661	783670	783679	783688	783697	783705	5	3. 5
923	783732	783741	783750	783759	783768	783776	783785	783794	783803	783812	4	4. 7
1029	783838	783847	783856	783865	783874	783883	783891	783900	783909	783918	3	1 = 2
136	783945	783954	783962	783971	783980	783989	783998	784007	784015	784024	2	2. 4
242	784051	784060	784068	784077	784086	784095	784104	784113	784121	784130	1	3. 5
348	784157	784166	784174	784183	784192	784201	784210	784219	784228	784236	0	4. 7
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-sine of 40 degrees, or Sine of 130 degrees.											Minutes	Proport. parts.

LOGARITHMIC SINES.

Minutes	Sine of 50 degrees, or Co-sine of 140 degrees.												Minutes	Propor. parts.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	9.884254	884263	884272	884281	884289	884298	884307	884316	884325	884334	884342	884351	59	1 = 1
1	9.884360	884369	884378	884386	884395	884404	884413	884422	884431	884439	884448	884457	58	1 = 1
2	9.884466	884475	884484	884492	884501	884510	884519	884528	884536	884545	884554	884563	57	1 = 1
3	9.884572	884581	884589	884598	884607	884616	884625	884633	884642	884651	884660	884669	56	1 = 1
4	9.884678	884686	884695	884704	884713	884722	884730	884739	884748	884757	884766	884774	55	1 = 1
5	9.884783	884792	884801	884810	884818	884827	884836	884845	884854	884863	884871	884880	54	1 = 1
6	9.884889	884898	884907	884915	884924	884933	884942	884951	884959	884968	884977	884986	53	1 = 1
7	9.884995	885003	885012	885021	885030	885038	885047	885056	885065	885074	885082	885091	52	1 = 1
8	9.885100	885109	885118	885126	885135	885144	885153	885162	885170	885179	885188	885197	51	1 = 1
9	9.885206	885214	885223	885232	885241	885249	885258	885267	885276	885285	885293	885302	50	1 = 1
10	9.885311	885320	885328	885337	885346	885355	885364	885372	885381	885390	885399	885408	49	1 = 1
11	9.885416	885425	885434	885443	885451	885460	885469	885478	885486	885495	885504	885513	48	1 = 1
12	9.885522	885530	885539	885548	885557	885565	885574	885583	885592	885600	885609	885618	47	1 = 1
13	9.885627	885636	885644	885653	885662	885671	885679	885688	885697	885706	885714	885723	46	1 = 1
14	9.885733	885741	885749	885758	885767	885776	885785	885793	885802	885811	885820	885828	45	1 = 1
15	9.885837	885846	885855	885863	885872	885881	885890	885898	885907	885916	885925	885933	44	1 = 1
16	9.885942	885951	885960	885968	885977	885986	885995	886003	886012	886021	886030	886038	43	1 = 1
17	9.886047	886056	886065	886073	886082	886091	886100	886108	886117	886126	886134	886143	42	1 = 1
18	9.886152	886161	886169	886178	886187	886196	886204	886213	886222	886231	886239	886248	41	1 = 1
19	9.886257	886266	886274	886283	886292	886301	886309	886318	886327	886335	886344	886353	40	1 = 1
20	9.886362	886370	886379	886388	886397	886405	886414	886423	886431	886440	886449	886458	39	1 = 1
21	9.886466	886475	886484	886493	886501	886510	886519	886527	886536	886545	886554	886563	38	1 = 1
22	9.886571	886580	886588	886597	886606	886615	886623	886632	886641	886649	886658	886667	37	1 = 1
23	9.886676	886684	886693	886702	886710	886719	886728	886737	886745	886754	886763	886771	36	1 = 1
24	9.886780	886789	886798	886806	886815	886824	886832	886841	886850	886859	886868	886876	35	1 = 1
25	9.886885	886893	886902	886911	886919	886928	886937	886946	886954	886963	886972	886980	34	1 = 1
26	9.886989	886998	887006	887015	887024	887033	887041	887050	887059	887067	887076	887085	33	1 = 1
27	9.887093	887102	887111	887119	887128	887137	887146	887154	887163	887172	887180	887189	32	1 = 1
28	9.887198	887206	887215	887224	887232	887241	887250	887259	887267	887276	887285	887293	31	1 = 1
29	9.887302	887311	887319	887328	887337	887345	887354	887363	887371	887380	887389	887397	30	1 = 1
30	9.887406	887415	887423	887432	887441	887449	887458	887467	887476	887484	887493	887502	29	1 = 1
31	9.887510	887519	887528	887536	887545	887554	887562	887571	887580	887588	887597	887606	28	1 = 1
32	9.887614	887623	887632	887640	887649	887658	887666	887675	887684	887692	887701	887710	27	1 = 1
33	9.887718	887727	887736	887744	887753	887762	887770	887779	887788	887796	887805	887814	26	1 = 1
34	9.887822	887831	887839	887848	887857	887865	887874	887883	887891	887900	887909	887917	25	1 = 1
35	9.887926	887935	887943	887952	887961	887969	887978	887987	887995	888004	888013	888021	24	1 = 1
36	9.888030	888038	888047	888056	888064	888073	888082	888090	888099	888108	888116	888125	23	1 = 1
37	9.888134	888142	888151	888159	888168	888177	888185	888194	888203	888211	888220	888229	22	1 = 1
38	9.888237	888246	888255	888263	888272	888280	888289	888298	888306	888315	888324	888332	21	1 = 1
39	9.888341	888349	888358	888367	888375	888384	888393	888401	888410	888419	888427	888436	20	1 = 1
40	9.888444	888453	888462	888470	888479	888488	888496	888505	888513	888522	888531	888539	19	1 = 1
41	9.888548	888557	888565	888574	888582	888591	888600	888608	888617	888625	888634	888643	18	1 = 1
42	9.888651	888660	888669	888677	888686	888694	888703	888712	888720	888729	888737	888746	17	1 = 1
43	9.888755	888763	888772	888781	888789	888798	888806	888815	888824	888832	888841	888849	16	1 = 1
44	9.888858	888867	888875	888884	888892	888901	888910	888918	888927	888935	888944	888953	15	1 = 1
45	9.888961	888970	888978	888987	888996	889004	889013	889021	889030	889039	889047	889056	14	1 = 1
46	9.889064	889073	889082	889090	889099	889107	889116	889125	889133	889142	889150	889159	13	1 = 1
47	9.889168	889176	889185	889193	889202	889211	889219	889228	889236	889245	889253	889262	12	1 = 1
48	9.889271	889279	889288	889296	889305	889314	889322	889331	889339	889348	889356	889365	11	1 = 1
49	9.889374	889382	889391	889399	889408	889417	889425	889434	889442	889451	889459	889468	10	1 = 1
50	9.889477	889485	889494	889502	889511	889519	889528	889537	889545	889554	889562	889571	9	1 = 1
51	9.889579	889588	889597	889605	889614	889622	889631	889639	889648	889656	889665	889674	8	1 = 1
52	9.889682	889691	889699	889708	889717	889725	889734	889742	889751	889759	889768	889776	7	1 = 1
53	9.889785	889794	889802	889811	889819	889828	889836	889845	889854	889862	889871	889879	6	1 = 1
54	9.889888	889896	889905	889913	889922	889931	889939	889948	889956	889965	889973	889982	5	1 = 1
55	9.889990	889999	890007	890016	890025	890033	890042	890050	890059	890067	890076	890084	4	1 = 1
56	9.890093	890101	890110	890119	890127	890136	890144	890153	890161	890170	890178	890187	3	1 = 1
57	9.890195	890204	890213	890221	890230	890238	890247	890255	890264	890272	890281	890289	2	1 = 1
58	9.890298	890306	890315	890324	890332	890341	890349	890358	890366	890375	890383	890392	1	1 = 1
59	9.890400	890409	890417	890426	890434	890443	890451	890460	890468	890477	890486	890494	0	1 = 1
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Propor. parts.
Co-sine of 39 degrees, or Sine of 129 degrees.														

Sine of 51 degrees, or Co-sine of 141 degrees.											Minutes	Proper parts.
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
890511	890520	890528	890537	890545	890554	890562	890571	890579	890588	890596	59	1" = 2
890611	890621	890630	890639	890648	890656	890665	890673	890682	890690	890699	58	2. 3
890716	890724	890733	890741	890750	890758	890767	890775	890784	890792	890801	57	3. 5
890818	890826	890835	890843	890852	890860	890869	890877	890886	890894	890903	56	4. 7
890926	890938	890947	890955	890964	890972	890981	890989	890998	891006	891015	55	1 = 2
891022	891030	891039	891047	891056	891064	891073	891081	891090	891098	891107	54	2. 3
891124	891132	891141	891149	891158	891166	891175	891183	891192	891200	891209	53	3. 5
891226	891234	891243	891251	891260	891268	891277	891285	891294	891302	891311	52	4. 7
891328	891336	891345	891353	891362	891370	891378	891387	891395	891404	891412	51	1 = 2
891429	891438	891446	891455	891463	891472	891480	891489	891497	891506	891514	50	2. 3
891531	891540	891548	891557	891565	891573	891582	891590	891599	891607	891616	49	3. 5
891633	891641	891650	891658	891667	891675	891684	891692	891700	891709	891717	48	4. 7
891734	891743	891751	891760	891768	891777	891785	891794	891802	891811	891819	47	1 = 2
891836	891844	891853	891861	891870	891878	891887	891895	891904	891912	891920	46	2. 3
891937	891946	891954	891963	891971	891980	891988	891997	892005	892013	892022	45	3. 5
892039	892047	892056	892064	892073	892081	892089	892098	892106	892115	892123	44	4. 7
892140	892149	892157	892165	892174	892182	892191	892199	892208	892216	892225	43	1 = 2
892241	892250	892258	892267	892275	892284	892292	892300	892309	892317	892326	42	2. 3
892343	892351	892360	892368	892376	892385	892393	892402	892410	892419	892427	41	3. 5
892444	892452	892461	892469	892478	892486	892494	892503	892511	892520	892528	40	4. 7
892545	892553	892562	892570	892579	892587	892595	892604	892612	892621	892629	39	1 = 2
892646	892654	892663	892671	892680	892688	892697	892705	892713	892722	892730	38	2. 3
892747	892755	892764	892772	892781	892789	892797	892806	892814	892823	892831	37	3. 5
892848	892856	892865	892873	892882	892890	892898	892907	892915	892924	892932	36	4. 7
892949	892957	892966	892974	892982	892991	892999	893008	893016	893024	893033	35	1 = 2
893050	893058	893066	893075	893083	893092	893100	893108	893117	893125	893134	34	2. 3
893150	893159	893167	893176	893184	893192	893201	893209	893218	893226	893234	33	3. 5
893251	893259	893268	893276	893285	893293	893301	893310	893318	893327	893335	32	4. 7
893352	893360	893368	893377	893385	893394	893402	893410	893419	893427	893436	31	1 = 2
893452	893461	893469	893477	893486	893494	893503	893511	893519	893528	893536	30	2. 3
893553	893561	893570	893578	893586	893595	893603	893611	893620	893628	893637	29	3. 5
893653	893662	893670	893678	893687	893695	893703	893712	893720	893729	893737	28	4. 7
893754	893762	893770	893779	893787	893795	893804	893812	893821	893829	893837	27	1 = 2
893854	893862	893871	893879	893887	893896	893904	893912	893921	893929	893938	26	2. 3
893954	893963	893971	893979	893988	893996	894004	894013	894021	894029	894038	25	3. 5
894054	894063	894071	894079	894088	894096	894105	894113	894121	894129	894138	24	4. 7
894158	894163	894171	894180	894188	894196	894205	894213	894221	894230	894238	23	1 = 2
894255	894263	894271	894280	894288	894296	894305	894313	894321	894330	894338	22	2. 3
894355	894363	894371	894380	894388	894396	894405	894413	894421	894430	894438	21	3. 5
894455	894463	894471	894480	894488	894496	894505	894513	894521	894530	894538	20	4. 7
894555	894563	894571	894580	894588	894596	894605	894613	894621	894630	894638	19	1 = 2
894654	894663	894671	894679	894688	894696	894704	894713	894721	894729	894738	18	2. 3
894754	894763	894771	894779	894788	894796	894804	894812	894821	894829	894837	17	3. 5
894854	894862	894871	894879	894887	894896	894904	894912	894920	894929	894937	16	4. 7
894954	894962	894970	894979	894987	894995	895004	895012	895020	895028	895037	15	1 = 2
895053	895062	895070	895078	895087	895095	895103	895111	895120	895128	895136	14	2. 3
895153	895161	895169	895178	895186	895194	895203	895211	895219	895227	895236	13	3. 5
895252	895261	895269	895277	895286	895294	895302	895310	895319	895327	895335	12	4. 7
895352	895360	895368	895377	895385	895393	895401	895410	895418	895426	895435	11	1 = 2
895451	895459	895468	895476	895484	895493	895501	895509	895517	895526	895534	10	2. 3
895550	895559	895567	895575	895584	895592	895600	895608	895617	895625	895633	9	3. 5
895650	895658	895666	895675	895683	895691	895699	895708	895716	895724	895732	8	4. 7
895749	895757	895765	895774	895782	895790	895799	895807	895815	895823	895832	7	1 = 2
895848	895856	895865	895873	895881	895889	895898	895906	895914	895922	895931	6	2. 3
895947	895955	895964	895972	895980	895988	895997	896005	896013	896021	896030	5	3. 5
896046	896054	896063	896071	896079	896087	896096	896104	896112	896120	896129	4	4. 7
896145	896153	896162	896170	896178	896186	896195	896203	896211	896219	896228	3	1 = 2
896244	896252	896261	896269	896277	896285	896293	896302	896310	896318	896326	2	2. 3
896343	896351	896359	896368	896376	896384	896392	896401	896409	896417	896425	1	3. 5
896442	896450	896458	896466	896475	896483	896491	896499	896508	896516	896524	0	4. 7
55	50	45	40	35	30	25	20	15	10	5	Minutes	Proper parts.
Co-sine of 38 degrees, or Sine of 128 degrees.												

LOGARITHMIC SINES.

Sine of 52 degrees, or Co-sine of 142 degrees.															
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes	Proport.	
0	9.896532	896540	896549	896557	896565	896573	896582	896590	896598	896606	896614	896623	59	1 =	
1	9.896631	896639	896647	896656	896664	896672	896680	896688	896697	896705	896713	896721	58	2 =	
2	9.896729	896738	896746	896754	896762	896771	896779	896787	896795	896803	896812	896820	57	3 =	
3	9.896828	896836	896844	896853	896861	896869	896877	896885	896894	896902	896910	896918	56	4 =	
4	9.896927	896935	896943	896951	896959	896968	896976	896984	896992	897000	897009	897017	55	1 =	
5	9.897025	897033	897041	897050	897058	897066	897074	897082	897091	897099	897107	897115	54	2 =	
6	9.897123	897132	897140	897148	897156	897164	897172	897181	897189	897197	897205	897213	53	3 =	
7	9.897222	897230	897238	897246	897254	897263	897271	897279	897287	897295	897304	897312	52	4 =	
8	9.897320	897328	897336	897344	897353	897361	897369	897377	897385	897394	897402	897410	51	1 =	
9	9.897418	897426	897434	897443	897451	897459	897467	897475	897484	897492	897500	897508	50	2 =	
10	9.897516	897524	897533	897541	897549	897557	897565	897573	897582	897590	897598	897606	49	3 =	
11	9.897614	897622	897631	897639	897647	897655	897663	897672	897680	897688	897696	897704	48	4 =	
12	9.897712	897721	897729	897737	897745	897753	897761	897770	897778	897786	897794	897802	47	1 =	
13	9.897810	897818	897827	897835	897843	897851	897859	897867	897876	897884	897892	897900	46	2 =	
14	9.897908	897916	897925	897933	897941	897949	897957	897965	897973	897982	897990	897998	45	3 =	
15	9.898006	898014	898022	898031	898039	898047	898055	898063	898071	898079	898088	898096	44	4 =	
16	9.898104	898112	898120	898128	898136	898145	898153	898161	898169	898177	898185	898193	43	1 =	
17	9.898202	898210	898218	898226	898234	898242	898250	898259	898267	898275	898283	898291	42	2 =	
18	9.898300	898307	898316	898324	898332	898340	898348	898356	898364	898372	898381	898389	41	3 =	
19	9.898397	898405	898413	898421	898429	898437	898446	898454	898462	898470	898478	898486	40	4 =	
20	9.898494	898503	898511	898519	898527	898535	898543	898551	898559	898568	898576	898584	39	1 =	
21	9.898592	898600	898608	898616	898624	898633	898641	898649	898657	898665	898673	898681	38	2 =	
22	9.898689	898697	898706	898714	898722	898730	898738	898746	898754	898762	898770	898779	37	3 =	
23	9.898787	898795	898803	898811	898819	898827	898835	898843	898852	898860	898868	898876	36	4 =	
24	9.898884	898892	898900	898908	898916	898925	898933	898941	898949	898957	898965	898973	35	1 =	
25	9.898981	898989	898997	899006	899014	899022	899030	899038	899046	899054	899062	899070	34	2 =	
26	9.899078	899086	899095	899103	899111	899119	899127	899135	899143	899151	899159	899168	33	3 =	
27	9.899176	899184	899192	899200	899208	899216	899224	899232	899240	899248	899257	899265	32	4 =	
28	9.899273	899281	899289	899297	899305	899313	899321	899329	899337	899345	899354	899362	31	1 =	
29	9.899370	899378	899386	899394	899402	899410	899418	899426	899434	899442	899451	899459	30	2 =	
30	9.899467	899475	899483	899491	899499	899507	899515	899523	899531	899539	899547	899556	29	3 =	
31	9.899564	899572	899580	899588	899596	899604	899612	899620	899628	899636	899644	899652	28	4 =	
32	9.899660	899668	899677	899685	899693	899701	899709	899717	899725	899733	899741	899749	27	1 =	
33	9.899757	899765	899773	899781	899790	899798	899806	899814	899822	899830	899838	899846	26	2 =	
34	9.899854	899862	899870	899878	899886	899894	899902	899910	899918	899926	899935	899943	25	3 =	
35	9.899951	899959	899967	899975	899983	899991	900000	900007	900015	900023	900031	900039	24	4 =	
36	9.900047	900055	900063	900071	900079	900088	900096	900104	900112	900120	900128	900136	23	1 =	
37	9.900144	900152	900160	900168	900176	900184	900192	900200	900208	900216	900224	900232	22	2 =	
38	9.900240	900248	900256	900264	900272	900281	900289	900297	900305	900313	900321	900329	21	3 =	
39	9.900337	900345	900353	900361	900369	900377	900385	900393	900401	900409	900417	900425	20	4 =	
40	9.900433	900441	900449	900457	900465	900473	900481	900489	900497	900505	900513	900521	19	1 =	
41	9.900529	900538	900546	900554	900562	900570	900578	900586	900594	900602	900610	900618	18	2 =	
42	9.900626	900634	900642	900650	900658	900666	900674	900682	900690	900698	900706	900714	17	3 =	
43	9.900722	900730	900738	900746	900754	900762	900770	900778	900786	900794	900802	900810	16	4 =	
44	9.900818	900826	900834	900842	900850	900858	900866	900874	900882	900890	900898	900906	15	1 =	
45	9.900914	900922	900930	900938	900946	900954	900962	900970	900978	900986	900994	901002	14	2 =	
46	9.901010	901018	901026	901034	901042	901050	901058	901066	901074	901082	901090	901098	13	3 =	
47	9.901106	901114	901122	901130	901138	901146	901154	901162	901170	901178	901186	901194	12	4 =	
48	9.901202	901210	901218	901226	901234	901242	901250	901258	901266	901274	901282	901290	11	1 =	
49	9.901298	901306	901314	901322	901330	901338	901346	901354	901362	901370	901378	901386	10	2 =	
50	9.901394	901402	901410	901418	901426	901434	901442	901450	901458	901466	901474	901482	9	3 =	
51	9.901490	901498	901506	901513	901521	901529	901537	901545	901553	901561	901569	901577	8	4 =	
52	9.901585	901593	901601	901609	901617	901625	901633	901641	901649	901657	901665	901673	7	1 =	
53	9.901681	901689	901697	901705	901713	901721	901729	901737	901745	901753	901761	901768	6	2 =	
54	9.901776	901784	901792	901800	901808	901816	901824	901832	901840	901848	901856	901864	5	3 =	
55	9.901872	901880	901888	901896	901904	901912	901920	901928	901936	901944	901952	901959	4	4 =	
56	9.901967	901975	901983	901991	901999	902007	902015	902023	902031	902039	902047	902055	3	1 =	
57	9.902063	902071	902079	902087	902095	902103	902110	902118	902126	902134	902142	902150	2	2 =	
58	9.902158	902166	902174	902182	902190	902198	902206	902214	902222	902230	902238	902246	1	3 =	
59	9.902253	902261	902269	902277	902285	902293	902301	902309	902317	902325	902333	902341	0	4 =	
Co-sine of 37 degrees, or Sine of 127 degrees.															
Minutes	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport.	

LOGARITHMIC SINES.

Sine of 53 degrees, or Co-sine of 143 degrees,												Minutes	Proper parts.
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
349	902357	902365	902372	902380	902388	902396	902404	902412	902420	902428	902436	59	1" = 2
444	902452	902460	902468	902476	902483	902491	902499	902507	902515	902523	902531	58	2. 3
539	902547	902555	902563	902571	902579	902586	902594	902602	902610	902618	902626	57	3. 5
634	902642	902650	902658	902666	902674	902682	902689	902697	902705	902713	902721	56	4. 7
729	902737	902745	902753	902761	902769	902776	902784	902792	902800	902808	902816	55	1 = 2
824	902832	902840	902848	902856	902863	902871	902879	902887	902895	902903	902911	54	2. 3
919	902927	902935	902943	902950	902958	902966	902974	902982	902990	902998	903006	53	3. 5
014	903022	903029	903037	903045	903053	903061	903069	903077	903085	903093	903101	52	4. 7
108	903116	903124	903132	903140	903148	903156	903164	903172	903179	903187	903195	51	1 = 2
203	903211	903219	903227	903235	903243	903250	903258	903266	903274	903282	903290	50	2. 3
298	903306	903314	903321	903329	903337	903345	903353	903361	903369	903377	903384	49	3. 5
392	903400	903408	903416	903424	903432	903440	903448	903455	903463	903471	903479	48	4. 7
487	903495	903503	903511	903518	903526	903534	903542	903550	903558	903566	903574	47	1 = 2
581	903589	903597	903605	903613	903621	903629	903636	903644	903652	903660	903668	46	2. 3
676	903684	903692	903699	903707	903715	903723	903731	903739	903747	903754	903762	45	3. 5
770	903778	903786	903794	903802	903809	903817	903825	903833	903841	903849	903857	44	4. 7
864	903872	903880	903888	903896	903904	903912	903919	903927	903935	903943	903951	43	1 = 2
959	903967	903974	903982	903990	903998	904006	904014	904022	904029	904037	904045	42	2. 3
053	904061	904069	904076	904084	904092	904100	904108	904116	904124	904131	904139	41	3. 5
147	904155	904163	904171	904178	904186	904194	904202	904210	904218	904225	904233	40	4. 7
241	904249	904257	904265	904272	904280	904288	904296	904304	904312	904319	904327	39	1 = 2
335	904343	904351	904359	904366	904374	904382	904390	904398	904406	904413	904421	38	2. 3
429	904437	904445	904453	904460	904468	904476	904484	904492	904500	904507	904515	37	3. 5
523	904531	904539	904546	904554	904562	904570	904578	904586	904593	904601	904609	36	4. 7
617	904625	904633	904640	904648	904656	904664	904672	904679	904687	904695	904703	35	1 = 2
711	904718	904726	904734	904742	904750	904758	904765	904773	904781	904789	904797	34	2. 3
804	904812	904820	904828	904836	904843	904851	904859	904867	904875	904882	904890	33	3. 5
898	904906	904914	904921	904929	904937	904945	904953	904960	904968	904976	904984	32	4. 7
992	904999	905007	905015	905023	905031	905038	905046	905054	905062	905070	905077	31	1 = 2
085	905093	905101	905109	905116	905124	905132	905140	905148	905155	905163	905171	30	2. 3
179	905187	905194	905202	905210	905218	905226	905233	905241	905249	905257	905264	29	3. 5
272	905280	905288	905296	905303	905311	905319	905327	905334	905342	905350	905358	28	4. 7
366	905373	905381	905389	905397	905405	905412	905420	905428	905436	905443	905451	27	1 = 2
459	905467	905475	905482	905490	905498	905506	905513	905521	905529	905537	905544	26	2. 3
552	905560	905568	905576	905583	905591	905599	905607	905614	905622	905630	905638	25	3. 5
645	905653	905661	905669	905677	905684	905692	905700	905708	905715	905723	905731	24	4. 7
739	905746	905754	905762	905770	905777	905785	905793	905801	905808	905816	905824	23	1 = 2
832	905839	905847	905855	905863	905871	905878	905886	905894	905902	905909	905917	22	2. 3
925	905933	905940	905948	905956	905964	905971	905979	905987	905995	906002	906010	21	3. 5
018	906026	906033	906041	906049	906057	906064	906072	906080	906088	906095	906103	20	4. 7
111	906118	906126	906134	906142	906149	906157	906165	906173	906180	906188	906196	19	1 = 2
204	906211	906219	906227	906235	906242	906250	906258	906266	906273	906281	906289	18	2. 3
296	906304	906312	906320	906327	906335	906343	906351	906358	906366	906374	906381	17	3. 5
389	906397	906405	906412	906420	906428	906436	906443	906451	906459	906466	906474	16	4. 7
482	906490	906497	906505	906513	906521	906528	906536	906544	906551	906559	906567	15	1 = 2
575	906582	906590	906598	906605	906613	906621	906629	906636	906644	906652	906659	14	2. 3
667	906675	906683	906690	906698	906706	906713	906721	906729	906737	906744	906752	13	3. 5
760	906767	906775	906783	906791	906798	906806	906814	906821	906829	906837	906845	12	4. 7
852	906860	906868	906875	906883	906891	906898	906906	906914	906922	906929	906937	11	1 = 2
945	906952	906960	906968	906975	906983	906991	906999	907006	907014	907022	907029	10	2. 3
037	907045	907052	907060	907068	907076	907083	907091	907099	907106	907114	907122	9	3. 5
130	907137	907145	907152	907160	907168	907175	907183	907191	907199	907206	907214	8	4. 7
222	907229	907237	907245	907252	907260	907268	907275	907283	907291	907298	907306	7	1 = 2
314	907322	907329	907337	907345	907352	907360	907368	907375	907383	907391	907398	6	2. 3
406	907414	907421	907429	907437	907444	907452	907460	907467	907475	907483	907490	5	3. 5
498	907506	907513	907521	907529	907536	907544	907552	907559	907567	907575	907582	4	4. 7
590	907598	907605	907613	907621	907628	907636	907644	907651	907659	907667	907674	3	1 = 2
682	907690	907697	907705	907713	907720	907728	907736	907743	907751	907759	907766	2	2. 3
774	907782	907789	907797	907805	907812	907820	907828	907835	907843	907851	907858	1	3. 5
866	907874	907881	907889	907896	907904	907912	907919	907927	907935	907942	907950	0	4. 7
	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proper parts.
Co-sine of 36 degrees, or Sine of 126 degrees.													

TABLE XXXVI.
LOGARITHMIC SINES.

Sine of 54 degrees, or Co-sine of 144 degrees.															
Minutes	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	Minutes	Proport.	
0	9.907958	907965	907973	907981	907988	907996	908004	908011	908019	908027	908034	908042	59	1° =	
1	9.908049	908057	908065	908072	908080	908088	908095	908103	908111	908118	908126	908134	58	2.	
2	9.908141	908149	908156	908164	908172	908179	908187	908195	908202	908210	908218	908225	57	3.	
3	9.908233	908240	908248	908256	908263	908271	908279	908286	908294	908301	908309	908317	56	4.	
4	9.908324	908332	908340	908347	908355	908363	908370	908378	908385	908393	908401	908408	55	1 =	
5	9.908416	908424	908431	908439	908446	908454	908462	908469	908477	908485	908492	908500	54	2.	
6	9.908507	908515	908523	908530	908538	908545	908553	908561	908568	908576	908584	908591	53	3.	
7	9.908599	908606	908614	908622	908629	908637	908645	908652	908660	908667	908675	908683	52	4.	
8	9.908690	908698	908705	908713	908721	908728	908736	908743	908751	908759	908766	908774	51	1 =	
9	9.908781	908789	908797	908804	908812	908820	908827	908835	908842	908850	908858	908865	50	2.	
10	9.908873	908880	908888	908896	908903	908911	908918	908926	908934	908941	908949	908956	49	3.	
11	9.908964	908972	908979	908987	908994	909002	909010	909017	909025	909032	909040	909047	48	4.	
12	9.909055	909063	909070	909078	909085	909093	909101	909108	909116	909123	909131	909139	47	1 =	
13	9.909146	909154	909161	909169	909177	909184	909192	909199	909207	909214	909222	909230	46	2.	
14	9.909237	909245	909252	909260	909268	909275	909283	909290	909298	909305	909313	909321	45	3.	
15	9.909328	909336	909343	909351	909358	909366	909374	909381	909389	909397	909404	909412	44	4.	
16	9.909419	909427	909434	909442	909449	909457	909465	909472	909480	909487	909495	909502	43	1 =	
17	9.909510	909518	909525	909533	909540	909548	909555	909563	909570	909578	909586	909593	42	2.	
18	9.909601	909608	909616	909623	909631	909639	909646	909654	909661	909669	909676	909684	41	3.	
19	9.909692	909699	909707	909714	909722	909729	909737	909744	909752	909760	909767	909775	40	4.	
20	9.909782	909790	909797	909805	909812	909820	909828	909835	909843	909850	909858	909865	39	1 =	
21	9.909873	909880	909888	909895	909903	909911	909918	909926	909933	909941	909948	909956	38	2.	
22	9.909963	909971	909979	909986	909994	910001	910009	910016	910024	910031	910039	910046	37	3.	
23	9.910054	910061	910069	910077	910084	910092	910099	910107	910114	910122	910129	910137	36	4.	
24	9.910144	910152	910159	910167	910175	910182	910190	910197	910205	910212	910220	910227	35	1 =	
25	9.910235	910242	910250	910257	910265	910272	910280	910288	910295	910303	910310	910318	34	2.	
26	9.910325	910333	910340	910348	910355	910363	910370	910378	910385	910393	910400	910408	33	3.	
27	9.910416	910423	910431	910438	910446	910453	910461	910468	910476	910483	910491	910498	32	4.	
28	9.910506	910513	910521	910528	910536	910543	910551	910558	910566	910573	910581	910588	31	1 =	
29	9.910596	910603	910611	910618	910626	910634	910641	910649	910656	910664	910671	910679	30	2.	
30	9.910686	910694	910701	910709	910716	910724	910731	910739	910746	910754	910761	910769	29	3.	
31	9.910776	910784	910791	910799	910806	910814	910821	910829	910836	910844	910851	910859	28	4.	
32	9.910866	910874	910881	910889	910896	910904	910911	910919	910926	910934	910941	910949	27	1 =	
33	9.910956	910964	910971	910979	910986	910994	911001	911009	911016	911024	911031	911039	26	2.	
34	9.911046	911054	911061	911069	911076	911084	911091	911099	911106	911113	911121	911128	25	3.	
35	9.911136	911143	911151	911158	911166	911173	911181	911188	911196	911203	911211	911218	24	4.	
36	9.911226	911233	911241	911248	911256	911263	911271	911278	911286	911293	911301	911308	23	1 =	
37	9.911316	911323	911330	911338	911345	911353	911360	911368	911375	911383	911390	911398	22	2.	
38	9.911405	911413	911420	911428	911435	911443	911450	911457	911465	911472	911480	911487	21	3.	
39	9.911495	911502	911510	911517	911525	911532	911540	911547	911555	911562	911569	911577	20	4.	
40	9.911584	911592	911599	911607	911614	911622	911629	911637	911644	911652	911659	911666	19	1 =	
41	9.911674	911681	911689	911696	911704	911711	911719	911726	911734	911741	911749	911756	18	2.	
42	9.911763	911771	911778	911786	911793	911801	911808	911816	911823	911831	911838	911845	17	3.	
43	9.911853	911860	911868	911875	911883	911890	911898	911905	911912	911920	911927	911935	16	4.	
44	9.911942	911950	911957	911965	911972	911979	911987	911994	912002	912009	912017	912024	15	1 =	
45	9.912032	912039	912046	912054	912061	912069	912076	912084	912091	912098	912106	912113	14	2.	
46	9.912121	912128	912136	912143	912151	912158	912165	912173	912180	912188	912195	912203	13	3.	
47	9.912210	912217	912225	912232	912240	912247	912255	912262	912269	912277	912284	912292	12	4.	
48	9.912299	912307	912314	912321	912329	912336	912344	912351	912359	912366	912373	912381	11	1 =	
49	9.912388	912396	912403	912410	912418	912425	912433	912440	912448	912455	912462	912470	10	2.	
50	9.912477	912485	912492	912499	912507	912514	912522	912529	912537	912544	912551	912559	9	3.	
51	9.912566	912574	912581	912588	912596	912603	912611	912618	912626	912633	912640	912648	8	4.	
52	9.912655	912663	912670	912677	912685	912692	912700	912707	912714	912722	912729	912737	7	1 =	
53	9.912744	912751	912759	912766	912774	912781	912788	912796	912803	912811	912818	912825	6	2.	
54	9.912833	912840	912848	912855	912862	912870	912877	912885	912892	912899	912907	912914	5	3.	
55	9.912922	912929	912936	912944	912951	912959	912966	912973	912981	912988	912996	913003	4	4.	
56	9.913010	913018	913025	913032	913040	913047	913055	913062	913069	913077	913084	913092	3	1 =	
57	9.913099	913106	913114	913121	913128	913136	913143	913151	913158	913165	913173	913180	2	2.	
58	9.913188	913195	913202	913210	913217	913224	913232	913239	913247	913254	913261	913269	1	3.	
59	9.913276	913283	913291	913298	913306	913313	913320	913328	913335	913342	913350	913357	0	4.	
60° 55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5°															
Co-sine of 35 degrees, or Sine of 125 degrees.															
Minutes														Minutes	Proport.

LOGARITHMIC SINES.

Sine of 55 degrees, or Co-sine of 145 degrees.											Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
65	913372	913379	913387	913394	913401	913409	913416	913424	913431	913438	59	1" = 1
53	913460	913468	913475	913482	913490	913497	913505	913512	913519	913527	58	2. 3
41	913549	913556	913563	913571	913578	913586	913593	913600	913608	913615	57	3. 4
30	913637	913644	913652	913659	913666	913674	913681	913689	913696	913703	56	4. 6
18	913725	913733	913740	913747	913755	913762	913769	913777	913784	913791	55	1" = 1
06	913814	913821	913828	913836	913843	913850	913858	913865	913872	913880	54	2. 3
94	913902	913909	913916	913924	913931	913938	913946	913953	913960	913968	53	3. 4
82	913990	913997	914004	914012	914019	914026	914034	914041	914048	914056	52	4. 6
70	914078	914085	914092	914100	914107	914114	914122	914129	914136	914144	51	1" = 1
58	914166	914173	914180	914188	914195	914202	914210	914217	914224	914232	50	2. 3
46	914254	914261	914268	914276	914283	914290	914298	914305	914312	914320	49	3. 4
34	914342	914349	914356	914364	914371	914378	914386	914393	914400	914407	48	4. 6
22	914429	914437	914444	914451	914459	914466	914473	914481	914488	914495	47	1" = 1
10	914517	914525	914532	914539	914546	914554	914561	914568	914576	914583	46	2. 3
08	914605	914612	914620	914627	914634	914641	914649	914656	914663	914671	45	3. 4
85	914693	914700	914707	914715	914722	914729	914736	914744	914751	914758	44	4. 6
73	914780	914787	914795	914802	914809	914817	914824	914831	914839	914846	43	1" = 1
60	914868	914875	914882	914890	914897	914904	914912	914919	914926	914933	42	2. 3
48	914955	914963	914970	914977	914984	914992	914999	915006	915014	915021	41	3. 4
35	915043	915050	915057	915065	915072	915079	915086	915094	915101	915108	40	4. 6
23	915130	915137	915145	915152	915159	915166	915174	915181	915188	915196	39	1" = 1
10	915217	915225	915232	915239	915247	915254	915261	915268	915276	915283	38	2. 3
97	915305	915312	915319	915327	915334	915341	915348	915356	915363	915370	37	3. 4
85	915392	915399	915406	915414	915421	915428	915436	915443	915450	915457	36	4. 6
72	915479	915486	915494	915501	915508	915515	915523	915530	915537	915544	35	1" = 1
59	915566	915573	915581	915588	915595	915603	915610	915617	915624	915632	34	2. 3
46	915653	915661	915668	915675	915682	915690	915697	915704	915711	915719	33	3. 4
33	915740	915748	915755	915762	915770	915777	915784	915791	915798	915806	32	4. 6
20	915827	915834	915842	915849	915856	915863	915871	915878	915885	915892	31	1" = 1
07	915914	915921	915929	915936	915943	915950	915958	915965	915972	915979	30	2. 3
94	916001	916008	916015	916023	916030	916037	916044	916052	916059	916067	29	3. 4
81	916088	916095	916102	916109	916117	916124	916131	916138	916146	916153	28	4. 6
67	916175	916182	916189	916196	916203	916211	916218	916225	916232	916240	27	1" = 1
54	916261	916268	916276	916283	916290	916297	916305	916312	916319	916326	26	2. 3
41	916348	916355	916362	916369	916377	916384	916391	916398	916406	916413	25	3. 4
27	916434	916442	916449	916456	916463	916470	916478	916485	916492	916499	24	4. 6
14	916521	916528	916535	916543	916550	916557	916564	916571	916579	916586	23	1" = 1
00	916607	916615	916622	916629	916636	916643	916651	916658	916665	916672	22	2. 3
37	916694	916701	916708	916715	916723	916730	916737	916744	916751	916759	21	3. 4
23	916780	916787	916795	916802	916809	916816	916823	916831	916838	916845	20	4. 6
59	916867	916874	916881	916888	916895	916902	916910	916917	916924	916931	19	1" = 1
46	916953	916960	916967	916974	916981	916989	916996	917003	917010	917017	18	2. 3
32	917039	917046	917053	917060	917068	917075	917082	917089	917096	917104	17	3. 4
18	917125	917132	917139	917147	917154	917161	917168	917175	917183	917190	16	4. 6
04	917211	917218	917226	917233	917240	917247	917254	917261	917269	917276	15	1" = 1
90	917297	917304	917312	917319	917326	917333	917340	917347	917355	917362	14	2. 3
76	917383	917390	917398	917405	917412	917419	917426	917433	917441	917448	13	3. 4
62	917469	917476	917483	917491	917498	917505	917512	917519	917526	917534	12	4. 6
48	917555	917562	917569	917576	917584	917591	917598	917605	917612	917619	11	1" = 1
34	917641	917648	917655	917662	917669	917677	917684	917691	917698	917705	10	2. 3
19	917727	917734	917741	917748	917755	917762	917769	917777	917784	917791	9	3. 4
05	917812	917819	917827	917834	917841	917848	917855	917862	917869	917877	8	4. 6
31	917898	917905	917912	917919	917927	917934	917941	917948	917955	917962	7	1" = 1
16	917984	917991	917998	918005	918012	918019	918026	918034	918041	918048	6	2. 3
02	918069	918076	918083	918091	918098	918105	918112	918119	918126	918133	5	3. 4
48	918155	918162	918169	918176	918183	918190	918197	918205	918212	918219	4	4. 6
33	918240	918247	918254	918261	918269	918276	918283	918290	918297	918304	3	1" = 1
18	918326	918333	918340	918347	918354	918361	918368	918375	918382	918390	2	2. 3
04	918411	918418	918425	918432	918439	918446	918453	918461	918468	918475	1	3. 4
39	918496	918503	918510	918517	918525	918532	918539	918546	918553	918560	0	4. 6
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-sine of 34 degrees, or Sine of 124 degrees.											Minutes	Proport. parts.

LOGARITHMIC SINES.

Minutes	Sine of 56 degrees, or Co-sine of 146 degrees.												Minutes	Proport. parts.
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
0	9.918574	918581	918588	918596	918603	918610	918617	918624	918631	918638	918645	918652	59	1° =
1	9.918659	918667	918674	918681	918688	918695	918702	918709	918716	918723	918730	918737	58	2. 1
2	9.918745	918752	918759	918766	918773	918780	918787	918794	918801	918808	918815	918823	57	3. 1
3	9.918830	918837	918844	918851	918858	918865	918872	918879	918886	918893	918901	918908	56	4. 1
4	9.918915	918922	918929	918936	918943	918950	918957	918964	918971	918978	918985	918993	55	1 =
5	9.919000	919007	919014	919021	919028	919035	919042	919049	919056	919063	919070	919077	54	2. 1
6	9.919085	919092	919099	919106	919113	919120	919127	919134	919141	919148	919155	919162	53	3. 1
7	9.919169	919177	919184	919191	919198	919205	919212	919219	919226	919233	919240	919247	52	4. 1
8	9.919254	919261	919268	919275	919283	919290	919297	919304	919311	919318	919325	919332	51	1 =
9	9.919339	919346	919353	919360	919367	919374	919381	919388	919395	919403	919410	919417	50	2. 1
10	9.919424	919431	919438	919445	919452	919459	919466	919473	919480	919487	919494	919501	49	3. 1
11	9.919508	919515	919522	919530	919537	919544	919551	919558	919565	919572	919579	919586	48	4. 1
12	9.919593	919600	919607	919614	919621	919628	919635	919642	919649	919656	919663	919670	47	1 =
13	9.919678	919685	919692	919699	919706	919713	919720	919727	919734	919741	919748	919755	46	2. 1
14	9.919762	919769	919776	919783	919790	919797	919804	919811	919818	919825	919832	919839	45	3. 1
15	9.919846	919853	919860	919868	919875	919882	919889	919896	919903	919910	919917	919924	44	4. 1
16	9.919931	919938	919945	919952	919959	919966	919973	919980	919987	919994	920001	920008	43	1 =
17	9.920015	920022	920029	920036	920043	920050	920057	920064	920071	920078	920085	920092	42	2. 1
18	9.920099	920106	920113	920120	920128	920135	920142	920149	920156	920163	920170	920177	41	3. 1
19	9.920184	920191	920198	920205	920212	920219	920226	920233	920240	920247	920254	920261	40	4. 1
20	9.920268	920275	920282	920289	920296	920303	920310	920317	920324	920331	920338	920345	39	1 =
21	9.920352	920359	920366	920373	920380	920387	920394	920401	920408	920415	920422	920429	38	2. 1
22	9.920436	920443	920450	920457	920464	920471	920478	920485	920492	920499	920506	920513	37	3. 1
23	9.920520	920527	920534	920541	920548	920555	920562	920569	920576	920583	920590	920597	36	4. 1
24	9.920604	920611	920618	920625	920632	920639	920646	920653	920660	920667	920674	920681	35	1 =
25	9.920688	920695	920702	920709	920716	920723	920730	920737	920744	920751	920758	920765	34	2. 1
26	9.920772	920779	920786	920793	920800	920807	920814	920821	920828	920835	920842	920849	33	3. 1
27	9.920856	920863	920870	920877	920883	920890	920897	920904	920911	920918	920925	920932	32	4. 1
28	9.920939	920946	920953	920960	920967	920974	920981	920988	920995	921002	921009	921016	31	1 =
29	9.921023	921030	921037	921044	921051	921058	921065	921072	921079	921086	921093	921100	30	2. 1
30	9.921107	921114	921121	921128	921135	921141	921148	921155	921162	921169	921176	921183	29	3. 1
31	9.921190	921197	921204	921211	921218	921225	921232	921239	921246	921253	921260	921267	28	4. 1
32	9.921274	921281	921288	921295	921302	921309	921316	921322	921329	921336	921343	921350	27	1 =
33	9.921357	921364	921371	921378	921385	921392	921399	921406	921413	921420	921427	921434	26	2. 1
34	9.921441	921448	921455	921462	921468	921475	921482	921489	921496	921503	921510	921517	25	3. 1
35	9.921524	921531	921538	921545	921552	921559	921566	921573	921580	921587	921594	921600	24	4. 1
36	9.921607	921614	921621	921628	921635	921642	921649	921656	921663	921670	921677	921684	23	1 =
37	9.921691	921698	921705	921711	921718	921725	921732	921739	921746	921753	921760	921767	22	2. 1
38	9.921774	921781	921788	921795	921802	921809	921815	921822	921829	921836	921843	921850	21	3. 1
39	9.921857	921864	921871	921878	921885	921892	921899	921906	921912	921919	921926	921933	20	4. 1
40	9.921940	921947	921954	921961	921968	921975	921982	921989	921996	922002	922009	922016	19	1 =
41	9.922023	922030	922037	922044	922051	922058	922065	922072	922079	922085	922092	922099	18	2. 1
42	9.922106	922113	922120	922127	922134	922141	922148	922155	922162	922168	922175	922182	17	3. 1
43	9.922189	922196	922203	922210	922217	922224	922231	922238	922244	922251	922258	922265	16	4. 1
44	9.922272	922279	922286	922293	922300	922307	922314	922320	922327	922334	922341	922348	15	1 =
45	9.922355	922362	922369	922376	922383	922390	922396	922403	922410	922417	922424	922431	14	2. 1
46	9.922438	922445	922452	922458	922465	922472	922479	922486	922493	922500	922507	922514	13	3. 1
47	9.922521	922527	922534	922541	922548	922555	922562	922569	922576	922583	922590	922597	12	4. 1
48	9.922603	922610	922617	922624	922631	922638	922645	922651	922658	922665	922672	922679	11	1 =
49	9.922686	922693	922700	922706	922713	922720	922727	922734	922741	922748	922755	922762	10	2. 1
50	9.922768	922775	922782	922789	922796	922803	922810	922817	922823	922830	922837	922844	9	3. 1
51	9.922851	922858	922865	922872	922878	922885	922892	922899	922906	922913	922920	922927	8	4. 1
52	9.922933	922940	922947	922954	922961	922968	922975	922982	922988	922995	923002	923009	7	1 =
53	9.923016	923023	923030	923036	923043	923050	923057	923064	923071	923078	923085	923091	6	2. 1
54	9.923098	923105	923112	923119	923126	923133	923139	923146	923153	923160	923167	923174	5	3. 1
55	9.923181	923187	923194	923201	923208	923215	923222	923229	923235	923242	923249	923256	4	4. 1
56	9.923263	923270	923277	923283	923290	923297	923304	923311	923318	923325	923331	923338	3	1 =
57	9.923345	923352	923359	923366	923372	923379	923386	923393	923400	923407	923414	923420	2	2. 1
58	9.923427	923434	923441	923448	923455	923461	923468	923475	923482	923489	923496	923503	1	3. 1
59	9.923509	923516	923523	923530	923537	923544	923550	923557	923564	923571	923578	923585	0	4. 1
Minutes	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-sine of 33 degrees, or Sine of 123 degrees.														

LOGARITHMIC SINES.

Sine of 57 degrees, or Co-sine of 147 degrees.												Minutes	Proport. parts.
°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
359	923598	923605	923612	923619	923626	923632	923639	923646	923653	923660	923667	59	1" = 1
367	923680	923687	923694	923701	923708	923714	923721	923728	923735	923742	923749	58	2. 3
375	923762	923769	923776	923783	923790	923796	923803	923810	923817	923824	923831	57	3. 4
383	923844	923851	923858	923865	923871	923878	923885	923892	923899	923906	923912	56	4. 5
391	923926	923933	923940	923946	923953	923960	923967	923974	923981	923987	923994	55	1 = 1
400	924008	924015	924021	924028	924035	924042	924049	924056	924063	924069	924076	54	2. 3
408	924090	924096	924103	924110	924117	924124	924130	924137	924144	924151	924158	53	3. 4
416	924171	924178	924185	924192	924198	924205	924212	924219	924226	924233	924239	52	4. 5
426	924253	924260	924267	924273	924280	924287	924294	924301	924307	924314	924321	51	1 = 1
438	924334	924341	924348	924355	924362	924368	924375	924382	924389	924396	924402	50	2. 3
449	924416	924423	924430	924436	924443	924450	924457	924464	924470	924477	924484	49	3. 4
451	924498	924504	924511	924518	924525	924531	924538	924545	924552	924559	924566	48	4. 5
457	924579	924586	924593	924599	924606	924613	924620	924626	924633	924640	924647	47	1 = 1
464	924660	924667	924674	924681	924687	924694	924701	924708	924715	924721	924728	46	2. 3
473	924742	924748	924755	924762	924769	924776	924782	924789	924796	924803	924809	45	3. 4
481	924823	924830	924837	924843	924850	924857	924864	924870	924877	924884	924891	44	4. 5
489	924904	924911	924918	924924	924931	924938	924945	924952	924958	924965	924972	43	1 = 1
497	924985	924992	924999	925006	925012	925019	925026	925033	925039	925046	925053	42	2. 3
506	925066	925073	925080	925087	925094	925100	925107	925114	925121	925127	925134	41	3. 4
514	925148	925154	925161	925168	925175	925181	925188	925195	925202	925208	925215	40	4. 5
522	925229	925235	925242	925249	925256	925262	925269	925276	925283	925289	925296	39	1 = 1
530	925310	925316	925323	925330	925337	925343	925350	925357	925364	925370	925377	38	2. 3
538	925390	925397	925404	925411	925417	925424	925431	925438	925444	925451	925458	37	3. 4
546	925471	925478	925485	925492	925498	925505	925512	925518	925525	925532	925539	36	4. 5
545	925552	925559	925566	925572	925579	925586	925593	925599	925606	925613	925619	35	1 = 1
566	925633	925640	925646	925653	925660	925667	925673	925680	925687	925693	925700	34	2. 3
577	925714	925720	925727	925734	925741	925747	925754	925761	925767	925774	925781	33	3. 4
588	925794	925801	925808	925814	925821	925828	925835	925841	925848	925855	925861	32	4. 5
588	925875	925882	925888	925895	925902	925908	925915	925922	925929	925935	925942	31	1 = 1
599	925955	925962	925969	925976	925982	925989	925996	926002	926009	926016	926023	30	2. 3
609	926036	926043	926049	926056	926063	926069	926076	926083	926090	926096	926103	29	3. 4
610	926116	926123	926130	926137	926143	926150	926157	926163	926170	926177	926183	28	4. 5
619	926197	926203	926210	926217	926224	926230	926237	926244	926250	926257	926264	27	1 = 1
627	926277	926284	926291	926297	926304	926311	926317	926324	926331	926337	926344	26	2. 3
635	926357	926364	926371	926378	926384	926391	926398	926404	926411	926418	926424	25	3. 4
643	926438	926444	926451	926458	926464	926471	926478	926484	926491	926498	926505	24	4. 5
651	926518	926525	926531	926538	926545	926551	926558	926565	926571	926578	926585	23	1 = 1
659	926598	926605	926611	926618	926625	926631	926638	926645	926651	926658	926665	22	2. 3
671	926678	926685	926691	926698	926705	926711	926718	926725	926731	926738	926745	21	3. 4
675	926758	926765	926771	926778	926785	926791	926798	926805	926811	926818	926825	20	4. 5
683	926838	926845	926851	926858	926865	926871	926878	926885	926891	926898	926905	19	1 = 1
691	926918	926925	926931	926938	926945	926951	926958	926965	926971	926978	926985	18	2. 3
699	926998	927005	927011	927018	927025	927031	927038	927045	927051	927058	927064	17	3. 4
707	927078	927084	927091	927098	927104	927111	927118	927124	927131	927138	927144	16	4. 5
715	927158	927164	927171	927178	927184	927191	927197	927204	927211	927217	927224	15	1 = 1
723	927237	927244	927251	927257	927264	927271	927277	927284	927290	927297	927304	14	2. 3
731	927317	927324	927330	927337	927344	927350	927357	927363	927370	927377	927383	13	3. 4
739	927397	927403	927410	927417	927423	927430	927436	927443	927450	927456	927463	12	4. 5
747	927476	927483	927489	927496	927503	927509	927516	927523	927529	927536	927542	11	1 = 1
749	927556	927562	927569	927576	927582	927589	927595	927602	927609	927615	927622	10	2. 3
762	927635	927642	927648	927655	927662	927668	927675	927682	927688	927695	927701	9	3. 4
768	927715	927721	927728	927734	927741	927748	927754	927761	927768	927774	927781	8	4. 5
787	927794	927801	927807	927814	927820	927827	927834	927840	927847	927853	927860	7	1 = 1
867	927873	927880	927887	927893	927900	927906	927913	927920	927926	927933	927939	6	2. 3
946	927953	927959	927966	927972	927979	927986	927992	927999	928005	928012	928019	5	3. 4
1025	928032	928038	928045	928052	928058	928065	928071	928078	928085	928091	928098	4	4. 5
1104	928111	928118	928124	928131	928137	928144	928151	928157	928164	928170	928177	3	1 = 1
1183	928190	928197	928203	928210	928216	928223	928230	928236	928243	928249	928256	2	2. 3
1263	928269	928276	928282	928289	928295	928302	928309	928315	928322	928328	928335	1	3. 4
1342	928348	928355	928361	928368	928374	928381	928388	928394	928401	928407	928414	0	4. 5
°	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-sine of 32 degrees, or Sine of 122 degrees.													

LOGARITHMIC SINES.

Minutes		Sine of 58 degrees, or Co-sine of 148 degrees.												Minutes		Prop.
		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
0	9.928421	9.928427	9.928434	9.928440	9.928447	9.928453	9.928460	9.928467	9.928473	9.928480	9.928486	9.928493	59	1	1	
1	9.928499	9.928506	9.928513	9.928519	9.928526	9.928532	9.928539	9.928545	9.928552	9.928559	9.928565	9.928572	58	2	1	
2	9.928578	9.928585	9.928591	9.928598	9.928605	9.928611	9.928618	9.928624	9.928631	9.928637	9.928644	9.928651	57	3	1	
3	9.928657	9.928664	9.928670	9.928677	9.928683	9.928690	9.928697	9.928703	9.928710	9.928716	9.928723	9.928729	56	4	1	
4	9.928736	9.928742	9.928749	9.928756	9.928762	9.928769	9.928775	9.928782	9.928788	9.928795	9.928801	9.928808	55	1	1	
5	9.928815	9.928821	9.928828	9.928834	9.928841	9.928847	9.928854	9.928860	9.928867	9.928874	9.928880	9.928887	54	2	1	
6	9.928893	9.928900	9.928906	9.928913	9.928919	9.928926	9.928933	9.928939	9.928946	9.928952	9.928959	9.928965	53	3	1	
7	9.928972	9.928978	9.928985	9.928992	9.928998	9.929005	9.929011	9.929018	9.929024	9.929031	9.929037	9.929044	52	4	1	
8	9.929050	9.929057	9.929064	9.929070	9.929077	9.929083	9.929090	9.929096	9.929103	9.929109	9.929116	9.929122	51	1	1	
9	9.929129	9.929135	9.929142	9.929149	9.929155	9.929162	9.929168	9.929175	9.929181	9.929188	9.929194	9.929201	50	2	1	
10	9.929207	9.929214	9.929220	9.929227	9.929234	9.929240	9.929247	9.929253	9.929260	9.929266	9.929273	9.929279	49	3	1	
11	9.929286	9.929292	9.929299	9.929305	9.929312	9.929318	9.929325	9.929332	9.929338	9.929345	9.929351	9.929358	48	4	1	
12	9.929364	9.929371	9.929377	9.929384	9.929390	9.929397	9.929403	9.929410	9.929416	9.929423	9.929429	9.929436	47	1	1	
13	9.929442	9.929449	9.929455	9.929462	9.929469	9.929475	9.929482	9.929488	9.929495	9.929501	9.929508	9.929514	46	2	1	
14	9.929521	9.929527	9.929534	9.929540	9.929547	9.929553	9.929560	9.929566	9.929573	9.929579	9.929586	9.929592	45	3	1	
15	9.929599	9.929605	9.929612	9.929618	9.929625	9.929631	9.929638	9.929644	9.929651	9.929657	9.929664	9.929671	44	4	1	
16	9.929677	9.929683	9.929690	9.929697	9.929703	9.929710	9.929716	9.929723	9.929729	9.929736	9.929742	9.929749	43	1	1	
17	9.929755	9.929762	9.929768	9.929775	9.929781	9.929788	9.929794	9.929801	9.929807	9.929814	9.929820	9.929827	42	2	1	
18	9.929833	9.929840	9.929846	9.929853	9.929859	9.929866	9.929872	9.929879	9.929885	9.929892	9.929898	9.929905	41	3	1	
19	9.929911	9.929918	9.929924	9.929931	9.929937	9.929944	9.929950	9.929957	9.929963	9.929970	9.929976	9.929983	40	4	1	
20	9.929989	9.929996	9.930002	9.930009	9.930015	9.930022	9.930028	9.930035	9.930041	9.930048	9.930054	9.930061	39	1	1	
21	9.930067	9.930074	9.930080	9.930087	9.930093	9.930099	9.930106	9.930112	9.930119	9.930125	9.930132	9.930138	38	2	1	
22	9.930145	9.930151	9.930158	9.930164	9.930171	9.930177	9.930184	9.930190	9.930197	9.930203	9.930210	9.930216	37	3	1	
23	9.930223	9.930229	9.930236	9.930242	9.930249	9.930255	9.930262	9.930268	9.930275	9.930281	9.930287	9.930294	36	4	1	
24	9.930300	9.930307	9.930313	9.930320	9.930326	9.930333	9.930339	9.930346	9.930352	9.930359	9.930365	9.930372	35	1	1	
25	9.930378	9.930385	9.930391	9.930398	9.930404	9.930410	9.930417	9.930423	9.930430	9.930436	9.930443	9.930449	34	2	1	
26	9.930456	9.930462	9.930469	9.930475	9.930482	9.930488	9.930495	9.930501	9.930508	9.930514	9.930520	9.930527	33	3	1	
27	9.930533	9.930540	9.930546	9.930553	9.930559	9.930566	9.930572	9.930579	9.930585	9.930592	9.930598	9.930604	32	4	1	
28	9.930611	9.930617	9.930624	9.930630	9.930637	9.930643	9.930650	9.930656	9.930663	9.930669	9.930675	9.930682	31	1	1	
29	9.930688	9.930695	9.930701	9.930708	9.930714	9.930721	9.930727	9.930734	9.930740	9.930746	9.930753	9.930759	30	2	1	
30	9.930766	9.930772	9.930779	9.930785	9.930792	9.930798	9.930805	9.930811	9.930817	9.930824	9.930830	9.930837	29	3	1	
31	9.930843	9.930850	9.930856	9.930863	9.930869	9.930875	9.930882	9.930888	9.930895	9.930901	9.930908	9.930914	28	4	1	
32	9.930921	9.930927	9.930933	9.930940	9.930946	9.930953	9.930959	9.930966	9.930972	9.930979	9.930985	9.930991	27	1	1	
33	9.930998	9.931004	9.931011	9.931017	9.931024	9.931030	9.931036	9.931043	9.931049	9.931056	9.931062	9.931069	26	2	1	
34	9.931075	9.931082	9.931088	9.931094	9.931101	9.931107	9.931114	9.931120	9.931127	9.931133	9.931139	9.931146	25	3	1	
35	9.931152	9.931159	9.931165	9.931172	9.931178	9.931184	9.931191	9.931197	9.931204	9.931210	9.931217	9.931223	24	4	1	
36	9.931229	9.931236	9.931242	9.931249	9.931255	9.931262	9.931268	9.931274	9.931281	9.931287	9.931294	9.931300	23	1	1	
37	9.931307	9.931313	9.931319	9.931326	9.931332	9.931339	9.931345	9.931351	9.931358	9.931364	9.931371	9.931377	22	2	1	
38	9.931384	9.931390	9.931396	9.931403	9.931409	9.931416	9.931422	9.931428	9.931435	9.931441	9.931448	9.931454	21	3	1	
39	9.931461	9.931467	9.931473	9.931480	9.931486	9.931493	9.931499	9.931505	9.931512	9.931518	9.931525	9.931531	20	4	1	
40	9.931537	9.931544	9.931550	9.931557	9.931563	9.931570	9.931576	9.931582	9.931589	9.931595	9.931602	9.931608	19	1	1	
41	9.931614	9.931621	9.931627	9.931634	9.931640	9.931646	9.931653	9.931659	9.931666	9.931672	9.931678	9.931685	18	2	1	
42	9.931691	9.931698	9.931704	9.931710	9.931717	9.931723	9.931730	9.931736	9.931742	9.931749	9.931755	9.931762	17	3	1	
43	9.931768	9.931774	9.931781	9.931787	9.931794	9.931800	9.931806	9.931813	9.931819	9.931826	9.931832	9.931838	16	4	1	
44	9.931845	9.931851	9.931857	9.931864	9.931870	9.931877	9.931883	9.931889	9.931896	9.931902	9.931909	9.931915	15	1	1	
45	9.931921	9.931928	9.931934	9.931941	9.931947	9.931953	9.931960	9.931966	9.931972	9.931979	9.931985	9.931992	14	2	1	
46	9.931998	9.932004	9.932011	9.932017	9.932024	9.932030	9.932036	9.932043	9.932049	9.932055	9.932062	9.932068	13	3	1	
47	9.932075	9.932081	9.932087	9.932094	9.932100	9.932107	9.932113	9.932119	9.932126	9.932132	9.932138	9.932145	12	4	1	
48	9.932151	9.932158	9.932164	9.932170	9.932177	9.932183	9.932189	9.932196	9.932202	9.932209	9.932215	9.932221	11	1	1	
49	9.932228	9.932234	9.932240	9.932247	9.932253	9.932259	9.932266	9.932272	9.932279	9.932285	9.932291	9.932298	10	2	1	
50	9.932304	9.932310	9.932317	9.932323	9.932330	9.932336	9.932342	9.932349	9.932355	9.932361	9.932368	9.932374	9	3	1	
51	9.932380	9.932387	9.932393	9.932400	9.932406	9.932412	9.932419	9.932425	9.932431	9.932438	9.932444	9.932450	8	4	1	
52	9.932457	9.932463	9.932470	9.932476	9.932482	9.932489	9.932495	9.932501	9.932508	9.932514	9.932520	9.932527	7	1	1	
53	9.932533	9.932539	9.932546	9.932552	9.932558	9.932565	9.932571	9.932578	9.932584	9.932590	9.932597	9.932603	6	2	1	
54	9.932609	9.932616	9.932622	9.932628	9.932635	9.932641	9.932647	9.932654	9.932660	9.932666	9.932673	9.932679	5	3	1	
55	9.932685	9.932692	9.932698	9.932705	9.932711	9.932717	9.932724	9.932730	9.932736	9.932743	9.932749	9.932755	4	4	1	
56	9.932762	9.932768	9.932774	9.932781	9.932787	9.932793	9.932800	9.932806	9.932812	9.932819	9.932825	9.932831	3	1	1	
57	9.932838	9.932844	9.932850	9.932857	9.932863	9.932869	9.932876	9.932882	9.932888	9.932895	9.932901	9.932907	2	2	1	
58	9.932914	9.932920	9.932926	9.932933	9.932939	9.932945	9.932952	9.932958	9.932964	9.932971	9.932977	9.932983	1	3	1	
59	9.932990	9.932996	9.933002	9.933009	9.933015	9.933021	9.933028	9.933034	9.933040	9.933047	9.933053	9.933059	0	4	1	
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	''				

LOGARITHMIC SINES.

Sine of 59 degrees, or Co-sine of 149 degrees.											Minutes	Proport. parts	
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
066	933072	933078	933085	933091	933097	933104	933110	933116	933123	933129	933135	59	1" = 1
142	933148	933154	933160	933167	933173	933179	933186	933192	933198	933205	933211	58	2. 3
217	933224	933230	933236	933243	933249	933255	933262	933268	933274	933281	933287	57	3. 4
293	933299	933306	933312	933318	933325	933331	933337	933344	933350	933356	933363	56	4. 5
369	933375	933381	933388	933394	933400	933407	933413	933419	933426	933432	933438	55	1" = 1
445	933451	933457	933463	933470	933476	933482	933489	933495	933501	933508	933514	54	2. 3
520	933526	933533	933539	933545	933552	933558	933564	933571	933577	933583	933589	53	3. 4
596	933602	933608	933615	933621	933627	933634	933640	933646	933652	933659	933665	52	4. 5
671	933678	933684	933690	933696	933703	933709	933715	933722	933728	933734	933740	51	1" = 1
747	933753	933759	933766	933772	933778	933785	933791	933797	933803	933810	933816	50	2. 3
822	933829	933835	933841	933847	933854	933860	933866	933872	933879	933885	933891	49	3. 4
898	933904	933910	933916	933923	933929	933935	933942	933948	933954	933960	933967	48	4. 5
973	933979	933985	933992	933998	934004	934011	934017	934023	934029	934036	934042	47	1" = 1
048	934054	934061	934067	934073	934080	934086	934092	934098	934105	934111	934117	46	2. 3
123	934130	934136	934142	934149	934155	934161	934167	934174	934180	934186	934192	45	3. 4
199	934205	934211	934217	934224	934230	934236	934242	934249	934255	934261	934268	44	4. 5
274	934280	934286	934293	934299	934305	934311	934318	934324	934330	934336	934343	43	1" = 1
349	934355	934361	934368	934374	934380	934386	934393	934399	934405	934411	934418	42	2. 3
424	934430	934436	934443	934449	934455	934461	934468	934474	934480	934486	934493	41	3. 4
499	934505	934511	934518	934524	934530	934536	934543	934549	934555	934561	934568	40	4. 5
574	934580	934586	934593	934599	934605	934611	934618	934624	934630	934636	934642	39	1" = 1
649	934655	934661	934667	934674	934680	934686	934692	934699	934705	934711	934717	38	2. 3
724	934730	934736	934742	934748	934755	934761	934767	934773	934780	934786	934792	37	3. 4
798	934805	934811	934817	934823	934829	934836	934842	934848	934854	934861	934867	36	4. 5
873	934879	934886	934892	934898	934904	934910	934917	934923	934929	934935	934942	35	1" = 1
948	934954	934960	934966	934973	934979	934985	934991	934998	935004	935010	935016	34	2. 2
022	935029	935035	935041	935047	935053	935060	935066	935072	935078	935085	935091	33	3. 4
097	935103	935109	935116	935122	935128	935134	935140	935147	935153	935159	935165	32	4. 5
172	935178	935184	935190	935196	935203	935209	935215	935221	935227	935234	935240	31	1" = 1
246	935252	935258	935265	935271	935277	935283	935289	935296	935302	935308	935314	30	2. 2
320	935327	935333	935339	935345	935351	935358	935364	935370	935376	935382	935389	29	3. 4
395	935401	935407	935413	935420	935426	935432	935438	935444	935451	935457	935463	28	4. 5
469	935475	935482	935488	935494	935500	935506	935513	935519	935525	935531	935537	27	1" = 1
543	935550	935556	935562	935568	935574	935581	935587	935593	935599	935605	935612	26	2. 2
618	935624	935630	935636	935642	935649	935655	935661	935667	935673	935680	935686	25	3. 4
692	935698	935704	935710	935717	935723	935729	935735	935741	935748	935754	935760	24	4. 5
766	935772	935778	935785	935791	935797	935803	935809	935815	935822	935828	935834	23	1" = 1
840	935846	935852	935859	935865	935871	935877	935883	935889	935896	935902	935908	22	2. 2
914	935920	935927	935933	935939	935945	935951	935957	935964	935970	935976	935982	21	3. 4
988	935994	936000	936007	936013	936019	936025	936031	936037	936044	936050	936056	20	4. 5
6	936068	936074	936081	936087	936093	936099	936105	936111	936118	936124	936130	19	1" = 1
36	936142	936148	936154	936161	936167	936173	936179	936185	936191	936198	936204	18	2. 2
106	936216	936222	936228	936234	936241	936247	936253	936259	936265	936271	936278	17	3. 4
84	936290	936296	936302	936308	936314	936321	936327	936333	936339	936345	936351	16	4. 5
57	936364	936370	936376	936382	936388	936394	936400	936407	936413	936419	936425	15	1" = 1
31	936437	936443	936450	936456	936462	936468	936474	936480	936486	936492	936499	14	2. 2
05	936511	936517	936523	936529	936535	936542	936548	936554	936560	936566	936572	13	3. 4
78	936584	936591	936597	936603	936609	936615	936621	936627	936634	936640	936646	12	4. 5
52	936658	936664	936670	936676	936683	936689	936695	936701	936707	936713	936719	11	1" = 1
25	936732	936738	936744	936750	936756	936762	936768	936774	936780	936787	936793	10	2. 2
99	936805	936811	936817	936823	936829	936836	936842	936848	936854	936860	936866	9	3. 4
72	936878	936884	936891	936897	936903	936909	936915	936921	936927	936933	936940	8	4. 5
46	936952	936958	936964	936970	936976	936982	936988	936994	937001	937007	937013	7	1" = 1
19	937025	937031	937037	937043	937049	937056	937062	937068	937074	937080	937086	6	2. 2
92	937098	937104	937110	937117	937123	937129	937135	937141	937147	937153	937159	5	3. 4
65	937171	937178	937184	937190	937196	937202	937208	937214	937220	937226	937232	4	4. 5
39	937245	937251	937257	937263	937269	937275	937281	937287	937293	937299	937306	3	1" = 1
12	937318	937324	937330	937336	937342	937348	937354	937360	937366	937373	937379	2	2. 2
85	937391	937397	937403	937409	937415	937421	937427	937433	937439	937446	937452	1	3. 4
58	937464	937470	937476	937482	937488	937494	937500	937506	937512	937519	937525	0	4. 5
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.	
Co-sine of 30 degrees, or Sine of 120 degrees.											Minutes	Proport. parts.	

LOGARITHMIC SINES.

Sine of 60 degrees, or Co-sine of 150 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Seconds
0	9.937531	937537	937543	937549	937555	937561	937567	937573	937579	937585	937591	937598	59	1' = 1"
1	9.937604	937610	937616	937622	937628	937634	937640	937646	937652	937658	937664	937670	58	2' = 1"
2	9.937676	937683	937689	937695	937701	937707	937713	937719	937725	937731	937737	937743	57	3' = 1"
3	9.937749	937755	937761	937767	937774	937780	937786	937792	937798	937804	937810	937816	56	4' = 1"
4	9.937822	937828	937834	937840	937846	937852	937858	937864	937871	937877	937883	937889	55	1' = 1"
5	9.937895	937901	937907	937913	937919	937925	937931	937937	937943	937949	937955	937961	54	2' = 1"
6	9.937967	937973	937980	937986	937992	937998	938004	938010	938016	938022	938028	938034	53	3' = 1"
7	9.938040	938046	938052	938058	938064	938070	938076	938082	938088	938094	938101	938107	52	4' = 1"
8	9.938113	938119	938125	938131	938137	938143	938149	938155	938161	938167	938173	938179	51	1' = 1"
9	9.938185	938191	938197	938203	938209	938215	938221	938227	938233	938239	938246	938252	50	2' = 1"
10	9.938258	938264	938270	938276	938282	938288	938294	938300	938306	938312	938318	938324	49	3' = 1"
11	9.938330	938336	938342	938348	938354	938360	938366	938372	938378	938384	938390	938396	48	4' = 1"
12	9.938402	938408	938414	938420	938427	938433	938439	938445	938451	938457	938463	938469	47	1' = 1"
13	9.938475	938481	938487	938493	938499	938505	938511	938517	938523	938529	938535	938541	46	2' = 1"
14	9.938547	938553	938559	938565	938571	938577	938583	938589	938595	938601	938607	938613	45	3' = 1"
15	9.938619	938625	938631	938637	938643	938649	938655	938661	938667	938673	938679	938685	44	4' = 1"
16	9.938691	938697	938703	938709	938715	938721	938727	938733	938740	938746	938752	938758	43	1' = 1"
17	9.938764	938770	938776	938782	938788	938794	938800	938806	938812	938818	938824	938830	42	2' = 1"
18	9.938836	938842	938848	938854	938860	938866	938872	938878	938884	938890	938896	938902	41	3' = 1"
19	9.938908	938914	938920	938926	938932	938938	938944	938950	938956	938962	938968	938974	40	4' = 1"
20	9.938980	938986	938992	938998	939004	939010	939016	939022	939028	939034	939040	939046	39	1' = 1"
21	9.939052	939058	939064	939070	939076	939082	939088	939094	939100	939106	939111	939117	38	2' = 1"
22	9.939123	939129	939135	939141	939147	939153	939159	939165	939171	939177	939183	939189	37	3' = 1"
23	9.939195	939201	939207	939213	939219	939225	939231	939237	939243	939249	939255	939261	36	4' = 1"
24	9.939267	939273	939279	939285	939291	939297	939303	939309	939315	939321	939327	939333	35	1' = 1"
25	9.939339	939345	939351	939357	939363	939369	939375	939381	939387	939393	939399	939405	34	2' = 1"
26	9.939411	939417	939423	939429	939434	939440	939446	939452	939458	939464	939470	939476	33	3' = 1"
27	9.939482	939488	939494	939500	939506	939512	939518	939524	939530	939536	939542	939548	32	4' = 1"
28	9.939554	939560	939566	939572	939578	939584	939590	939596	939601	939607	939613	939619	31	1' = 1"
29	9.939625	939631	939637	939643	939649	939655	939661	939667	939673	939679	939685	939691	30	2' = 1"
30	9.939697	939703	939709	939715	939721	939727	939733	939739	939744	939750	939756	939762	29	3' = 1"
31	9.939768	939774	939780	939786	939792	939798	939804	939810	939816	939822	939828	939834	28	4' = 1"
32	9.939840	939846	939852	939858	939864	939869	939875	939881	939887	939893	939899	939905	27	1' = 1"
33	9.939911	939917	939923	939929	939935	939941	939947	939953	939959	939965	939970	939976	26	2' = 1"
34	9.939982	939988	939994	940000	940006	940012	940018	940024	940030	940036	940042	940048	25	3' = 1"
35	9.940054	940060	940066	940072	940078	940083	940089	940095	940101	940107	940113	940119	24	4' = 1"
36	9.940125	940131	940137	940143	940149	940154	940160	940166	940172	940178	940184	940190	23	1' = 1"
37	9.940196	940202	940208	940214	940220	940226	940232	940237	940243	940249	940255	940261	22	2' = 1"
38	9.940267	940273	940279	940285	940291	940297	940303	940309	940314	940320	940326	940332	21	3' = 1"
39	9.940338	940344	940350	940356	940362	940368	940374	940380	940385	940391	940397	940403	20	4' = 1"
40	9.940409	940415	940421	940427	940433	940439	940445	940451	940456	940462	940468	940474	19	1' = 1"
41	9.940480	940486	940492	940498	940504	940510	940516	940521	940527	940533	940539	940545	18	2' = 1"
42	9.940551	940557	940563	940569	940575	940581	940586	940592	940598	940604	940610	940616	17	3' = 1"
43	9.940622	940628	940634	940640	940646	940651	940657	940663	940669	940675	940681	940687	16	4' = 1"
44	9.940693	940699	940705	940710	940716	940722	940728	940734	940740	940746	940752	940758	15	1' = 1"
45	9.940763	940769	940775	940781	940787	940793	940799	940805	940811	940817	940822	940828	14	2' = 1"
46	9.940834	940840	940846	940852	940858	940864	940870	940875	940881	940887	940893	940899	13	3' = 1"
47	9.940905	940911	940917	940923	940928	940934	940940	940946	940952	940958	940964	940970	12	4' = 1"
48	9.940976	940981	940987	940993	940999	941005	941011	941017	941023	941028	941034	941040	11	1' = 1"
49	9.941046	941052	941058	941064	941070	941076	941081	941087	941093	941099	941105	941111	10	2' = 1"
50	9.941117	941122	941128	941134	941140	941146	941152	941158	941164	941170	941175	941181	9	3' = 1"
51	9.941187	941193	941199	941205	941211	941216	941222	941228	941234	941240	941246	941252	8	4' = 1"
52	9.941258	941263	941269	941275	941281	941287	941293	941299	941304	941310	941316	941322	7	1' = 1"
53	9.941328	941334	941340	941346	941351	941357	941363	941369	941375	941381	941387	941392	6	2' = 1"
54	9.941398	941404	941410	941416	941422	941428	941433	941439	941445	941451	941457	941463	5	3' = 1"
55	9.941469	941474	941480	941486	941492	941498	941504	941510	941515	941521	941527	941533	4	4' = 1"
56	9.941539	941545	941551	941556	941562	941568	941574	941580	941586	941591	941597	941603	3	1' = 1"
57	9.941609	941615	941621	941627	941632	941638	941644	941650	941656	941662	941667	941673	2	2' = 1"
58	9.941679	941685	941691	941697	941703	941708	941714	941720	941726	941732	941738	941743	1	3' = 1"
59	9.941749	941755	941761	941767	941773	941778	941784	941790	941796	941802	941808	941813	0	4' = 1"
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Seconds
Co-sine of 29 degrees, or Sine of 119 degrees.														

LOGARITHMIC SINES.

Minutes	Sine of 62 degrees, or Co-sine of 152 degrees.												Minutes	Prop.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	9.945935	945941	945946	945952	945957	945963	945969	945974	945980	945985	945991	945997	59	1"
1	9.946002	946008	946013	946019	946024	946030	946036	946041	946047	946052	946058	946064	58	2.
2	9.946069	946075	946080	946086	946092	946097	946103	946108	946114	946120	946125	946131	57	3.
3	9.946136	946142	946147	946153	946159	946164	946170	946175	946181	946187	946192	946198	56	4.
4	9.946203	946209	946214	946220	946226	946231	946237	946242	946248	946254	946259	946265	55	1"
5	9.946270	946276	946281	946287	946293	946298	946304	946309	946315	946320	946326	946332	54	2.
6	9.946337	946343	946348	946354	946359	946365	946371	946376	946382	946387	946393	946398	53	3.
7	9.946404	946410	946415	946421	946426	946432	946437	946443	946449	946454	946460	946465	52	4.
8	9.946471	946476	946482	946488	946493	946499	946504	946510	946515	946521	946526	946532	51	1"
9	9.946538	946543	946549	946554	946560	946565	946571	946577	946582	946588	946593	946599	50	2.
10	9.946604	946610	946615	946621	946627	946632	946638	946643	946649	946654	946660	946665	49	3.
11	9.946671	946677	946682	946688	946693	946699	946704	946710	946715	946721	946727	946732	48	4.
12	9.946738	946743	946749	946754	946760	946765	946771	946776	946782	946788	946793	946799	47	1"
13	9.946804	946810	946815	946821	946826	946832	946838	946843	946849	946854	946860	946865	46	2.
14	9.946871	946876	946882	946887	946893	946898	946904	946910	946915	946921	946926	946932	45	3.
15	9.946937	946943	946948	946954	946959	946965	946970	946976	946982	946987	946993	946998	44	4.
16	9.947004	947009	947015	947020	947026	947031	947037	947042	947048	947053	947059	947065	43	1"
17	9.947070	947076	947081	947087	947092	947098	947103	947109	947114	947120	947125	947131	42	2.
18	9.947136	947142	947147	947153	947159	947164	947170	947175	947181	947186	947192	947197	41	3.
19	9.947203	947208	947214	947219	947225	947230	947236	947241	947247	947252	947258	947263	40	4.
20	9.947269	947275	947280	947286	947291	947297	947302	947308	947313	947319	947324	947330	39	1"
21	9.947335	947341	947346	947352	947357	947363	947368	947374	947379	947385	947390	947396	38	2.
22	9.947401	947407	947412	947418	947423	947429	947434	947440	947445	947451	947456	947462	37	3.
23	9.947467	947473	947478	947484	947490	947495	947501	947506	947512	947517	947523	947528	36	4.
24	9.947534	947539	947545	947550	947556	947561	947567	947572	947578	947583	947589	947594	35	1"
25	9.947600	947605	947611	947616	947622	947627	947633	947638	947644	947649	947655	947660	34	2.
26	9.947666	947671	947677	947682	947688	947693	947699	947704	947710	947715	947720	947726	33	3.
27	9.947731	947737	947742	947748	947753	947759	947764	947770	947775	947781	947786	947792	32	4.
28	9.947797	947803	947808	947814	947819	947825	947830	947836	947841	947847	947852	947858	31	1"
29	9.947863	947869	947874	947880	947885	947891	947896	947902	947907	947913	947918	947923	30	2.
30	9.947929	947934	947940	947945	947951	947956	947962	947967	947973	947978	947984	947989	29	3.
31	9.947995	948000	948006	948011	948017	948022	948028	948033	948039	948044	948049	948055	28	4.
32	9.948060	948066	948071	948077	948082	948088	948093	948099	948104	948110	948115	948121	27	1"
33	9.948126	948132	948137	948142	948148	948153	948159	948164	948170	948175	948181	948186	26	2.
34	9.948192	948197	948203	948208	948214	948219	948224	948230	948235	948241	948246	948252	25	3.
35	9.948257	948263	948268	948274	948279	948285	948290	948295	948301	948306	948312	948317	24	4.
36	9.948323	948328	948334	948339	948345	948350	948355	948361	948366	948372	948377	948383	23	1"
37	9.948388	948394	948399	948405	948410	948415	948421	948426	948432	948437	948443	948448	22	2.
38	9.948454	948459	948464	948470	948475	948481	948486	948492	948497	948503	948508	948514	21	3.
39	9.948519	948524	948530	948535	948541	948546	948552	948557	948563	948568	948573	948579	20	4.
40	9.948584	948590	948595	948601	948606	948611	948617	948622	948628	948633	948639	948644	19	1"
41	9.948650	948655	948660	948666	948671	948677	948682	948688	948693	948698	948704	948709	18	2.
42	9.948715	948720	948726	948731	948737	948742	948747	948753	948758	948764	948769	948775	17	3.
43	9.948780	948785	948791	948796	948802	948807	948813	948818	948823	948829	948834	948840	16	4.
44	9.948845	948851	948856	948861	948867	948872	948878	948883	948888	948894	948899	948905	15	1"
45	9.948910	948916	948921	948926	948932	948937	948943	948948	948954	948959	948964	948970	14	2.
46	9.948975	948981	948986	948991	948997	949002	949008	949013	949019	949024	949029	949035	13	3.
47	9.949040	949046	949051	949056	949062	949067	949073	949078	949084	949089	949094	949100	12	4.
48	9.949105	949111	949116	949121	949127	949132	949138	949143	949148	949154	949159	949165	11	1"
49	9.949170	949175	949181	949186	949192	949197	949203	949208	949213	949219	949224	949230	10	2.
50	9.949235	949240	949246	949251	949257	949262	949267	949273	949278	949284	949289	949294	9	3.
51	9.949300	949305	949311	949316	949321	949327	949332	949338	949343	949348	949354	949359	8	4.
52	9.949365	949370	949375	949381	949386	949391	949397	949402	949408	949413	949418	949424	7	1"
53	9.949429	949435	949440	949445	949451	949456	949462	949467	949472	949478	949483	949488	6	2.
54	9.949494	949499	949505	949510	949515	949521	949526	949532	949537	949542	949548	949553	5	3.
55	9.949559	949564	949569	949575	949580	949585	949591	949596	949602	949607	949612	949618	4	4.
56	9.949623	949628	949634	949639	949645	949650	949655	949661	949666	949671	949677	949682	3	1"
57	9.949688	949693	949698	949704	949709	949714	949720	949725	949731	949736	949741	949747	2	2.
58	9.949752	949757	949763	949768	949774	949779	949784	949790	949795	949800	949806	949811	1	3.
59	9.949817	949822	949827	949833	949838	949843	949849	949854	949859	949865	949870	949876	0	4.
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Prop.
Co-sine of 27 degrees, or Sine of 117 degrees.														

33	950337	950341	950340	950352	950357	950304	950300	950373	950370	950304	950309	52	4	1
394	950400	950405	950410	950416	950421	950426	950432	950437	950442	950448	950453	51	1	=
438	950464	950469	950474	950480	950485	950490	950496	950501	950506	950512	950517	50	2	2
522	950528	950533	950538	950544	950549	950554	950560	950565	950570	950576	950581	49	3	3
586	950592	950597	950602	950607	950613	950618	950623	950629	950634	950639	950645	48	4	4
650	950655	950661	950666	950671	950677	950682	950687	950693	950698	950703	950709	47	1	=
714	950719	950724	950730	950735	950740	950746	950751	950756	950762	950767	950772	46	2	2
778	950784	950788	950793	950799	950804	950809	950815	950820	950825	950831	950836	45	3	2
841	950847	950852	950857	950862	950868	950873	950878	950884	950889	950894	950900	44	4	4
905	950910	950916	950921	950926	950931	950937	950944	950949	950955	950958	950963	43	1	=
969	950974	950979	950984	950990	950995	951000	951006	951011	951016	951021	951027	42	2	2
1032	951037	951043	951048	951053	951059	951064	951069	951074	951080	951085	951090	41	3	3
1096	951101	951106	951111	951117	951122	951127	951133	951138	951143	951148	951154	40	4	4
1159	951164	951170	951175	951180	951186	951191	951196	951201	951207	951212	951217	39	1	=
1222	951228	951233	951238	951244	951249	951254	951259	951265	951270	951275	951281	38	2	2
1286	951291	951296	951302	951307	951312	951318	951323	951328	951333	951339	951344	37	3	3
1349	951354	951360	951365	951370	951376	951381	951386	951391	951397	951402	951407	36	4	4
1412	951418	951423	951428	951434	951439	951444	951449	951455	951460	951465	951470	35	1	=
1476	951481	951486	951492	951497	951502	951507	951513	951518	951523	951528	951534	34	2	2
1539	951544	951549	951555	951560	951565	951570	951576	951581	951586	951592	951597	33	3	3
1602	951607	951613	951618	951623	951628	951634	951639	951644	951649	951655	951660	32	4	4
1665	951670	951676	951681	951686	951691	951697	951702	951707	951712	951718	951723	31	1	=
1728	951733	951739	951744	951749	951754	951760	951765	951770	951775	951781	951786	30	2	2
1791	951796	951802	951807	951812	951817	951823	951828	951833	951838	951844	951849	29	3	3
1854	951859	951865	951870	951875	951880	951886	951891	951896	951901	951907	951912	28	4	4
1917	951925	951928	951933	951938	951943	951949	951954	951959	951964	951970	951975	27	1	=
1980	951982	951990	951996	952001	952006	952011	952017	952022	952027	952032	952038	26	2	2
2043	952048	952053	952059	952064	952069	952074	952079	952085	952090	952095	952100	25	3	3
2106	952111	952116	952121	952127	952132	952137	952142	952147	952153	952158	952163	24	4	4
2169	952174	952179	952184	952189	952194	952200	952205	952210	952215	952221	952226	23	1	=
2232	952235	952241	952247	952252	952257	952262	952268	952273	952278	952283	952288	22	2	2
2295	952299	952304	952309	952315	952320	952325	952330	952335	952341	952346	952351	21	3	3
2358	952361	952367	952372	952377	952382	952388	952393	952398	952403	952408	952414	20	4	4
2421	952424	952429	952434	952440	952445	952450	952455	952460	952466	952471	952476	19	1	=
2484	952487	952492	952497	952502	952507	952513	952518	952523	952528	952533	952539	18	2	2
2547	952549	952554	952559	952565	952570	952575	952580	952585	952591	952596	952601	17	3	3
2610	952611	952617	952622	952627	952632	952637	952643	952648	952653	952658	952663	16	4	4
2673	952674	952679	952684	952689	952695	952700	952705	952710	952715	952720	952726	15	1	=
2736	952737	952741	952746	952752	952757	952762	952767	952772	952778	952783	952788	14	2	2
2799	952798	952804	952809	952814	952819	952824	952829	952835	952840	952845	952850	13	3	3
2862	952861	952866	952871	952876	952881	952886	952892	952897	952902	952907	952912	12	4	4
2925	952923	952928	952933	952938	952943	952949	952954	952959	952964	952969	952975	11	1	=
2988	952989	952994	952999	953000	953006	953011	953016	953021	953026	953031	953037	10	2	2
3051	953047	953052	953057	953062	953068	953073	953078	953083	953088	953094	953099	9	3	3
3114	953109	953114	953119	953125	953130	953135	953140	953145	953151	953156	953161	8	4	4
3177	953171	953176	953181	953187	953192	953197	953202	953207	953212	953217	953223	7	1	=

LOGARITHMIC SINES.

Minutes		Sine of 64 degrees, or Co-sine of 154 degrees.												Minutes	Proportional Parts
		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
0	9.953660	953665	953671	953676	953681	953686	953691	953696	953701	953706	953712	953717	953722	59	1 =
1	9.953722	953727	953732	953737	953742	953747	953753	953758	953763	953768	953773	953778	953783	58	2 =
2	9.953783	953789	953794	953799	953804	953809	953814	953819	953824	953830	953835	953840	953845	57	3 =
3	9.953845	953850	953855	953860	953865	953870	953876	953881	953886	953891	953896	953901	953906	56	4 =
4	9.953906	953911	953917	953922	953927	953932	953937	953942	953947	953952	953957	953963	953968	55	1 =
5	9.953968	953973	953978	953983	953988	953993	953998	954004	954009	954014	954019	954024	954029	54	2 =
6	9.954029	954034	954039	954044	954049	954055	954060	954065	954070	954075	954080	954085	954090	53	3 =
7	9.954090	954096	954101	954106	954111	954116	954121	954126	954131	954136	954141	954147	954152	52	4 =
8	9.954152	954157	954162	954167	954172	954177	954182	954187	954193	954198	954203	954208	954213	51	1 =
9	9.954213	954218	954223	954228	954233	954238	954244	954249	954254	954259	954264	954269	954274	50	2 =
10	9.954274	954279	954284	954289	954295	954300	954305	954310	954315	954320	954325	954330	954335	49	3 =
11	9.954335	954340	954345	954351	954356	954361	954366	954371	954376	954381	954386	954391	954396	48	4 =
12	9.954396	954401	954407	954412	954417	954422	954427	954432	954437	954442	954447	954452	954457	47	1 =
13	9.954457	954462	954468	954473	954478	954483	954488	954493	954498	954503	954508	954513	954518	46	2 =
14	9.954518	954523	954529	954534	954539	954544	954549	954554	954559	954564	954569	954574	954579	45	3 =
15	9.954579	954584	954590	954595	954600	954605	954610	954615	954620	954625	954630	954635	954640	44	4 =
16	9.954640	954645	954650	954655	954661	954666	954671	954676	954681	954686	954691	954696	954701	43	1 =
17	9.954701	954706	954711	954716	954721	954726	954732	954737	954742	954747	954752	954757	954762	42	2 =
18	9.954762	954767	954772	954777	954782	954787	954792	954797	954802	954807	954812	954817	954822	41	3 =
19	9.954823	954828	954833	954838	954843	954848	954853	954858	954863	954868	954873	954878	954883	40	4 =
20	9.954883	954889	954894	954899	954904	954909	954914	954919	954924	954929	954934	954939	954944	39	1 =
21	9.954944	954949	954954	954959	954964	954969	954974	954979	954984	954989	954994	954999	955004	38	2 =
22	9.955005	955010	955015	955020	955025	955030	955035	955040	955045	955050	955055	955060	955065	37	3 =
23	9.955065	955070	955075	955081	955086	955091	955096	955101	955106	955111	955116	955121	955126	36	4 =
24	9.955126	955131	955136	955141	955146	955151	955156	955161	955166	955171	955176	955181	955186	35	1 =
25	9.955186	955191	955197	955202	955207	955212	955217	955222	955227	955232	955237	955242	955247	34	2 =
26	9.955247	955252	955257	955262	955267	955272	955277	955282	955287	955292	955297	955302	955307	33	3 =
27	9.955307	955312	955317	955322	955327	955332	955337	955342	955347	955352	955357	955362	955367	32	4 =
28	9.955368	955373	955378	955383	955388	955393	955398	955403	955408	955413	955418	955423	955428	31	1 =
29	9.955428	955433	955438	955443	955448	955453	955458	955463	955468	955473	955478	955483	955488	30	2 =
30	9.955488	955493	955498	955503	955508	955513	955518	955523	955528	955533	955538	955543	955548	29	3 =
31	9.955549	955554	955559	955564	955569	955574	955579	955584	955589	955594	955599	955604	955609	28	4 =
32	9.955609	955614	955619	955624	955629	955634	955639	955644	955649	955654	955659	955664	955669	27	1 =
33	9.955669	955674	955679	955684	955689	955694	955699	955704	955709	955714	955719	955724	955729	26	2 =
34	9.955729	955734	955739	955744	955749	955754	955759	955764	955769	955774	955779	955784	955789	25	3 =
35	9.955789	955794	955799	955804	955809	955814	955819	955824	955829	955834	955839	955844	955849	24	4 =
36	9.955849	955854	955859	955864	955869	955874	955879	955884	955889	955894	955899	955904	955909	23	1 =
37	9.955909	955914	955919	955924	955929	955934	955939	955944	955949	955954	955959	955964	955969	22	2 =
38	9.955969	955974	955979	955984	955989	955994	955999	956004	956009	956014	956019	956024	956029	21	3 =
39	9.956029	956034	956039	956044	956049	956054	956059	956064	956069	956074	956079	956084	956089	20	4 =
40	9.956089	956094	956099	956104	956109	956114	956119	956123	956128	956133	956138	956143	956148	19	1 =
41	9.956148	956153	956158	956163	956168	956173	956178	956183	956188	956193	956198	956203	956208	18	2 =
42	9.956208	956213	956218	956223	956228	956233	956238	956243	956248	956253	956258	956263	956268	17	3 =
43	9.956268	956273	956278	956283	956288	956293	956298	956303	956308	956313	956318	956323	956328	16	4 =
44	9.956327	956332	956337	956342	956347	956352	956357	956362	956367	956372	956377	956382	956387	15	1 =
45	9.956387	956392	956397	956402	956407	956412	956417	956422	956427	956432	956437	956442	956447	14	2 =
46	9.956447	956452	956457	956462	956467	956472	956477	956482	956487	956492	956497	956502	956507	13	3 =
47	9.956506	956511	956516	956521	956526	956531	956536	956541	956546	956551	956556	956561	956566	12	4 =
48	9.956566	956571	956576	956581	956586	956591	956596	956601	956606	956611	956616	956621	956626	11	1 =
49	9.956625	956630	956635	956640	956645	956650	956655	956660	956665	956670	956675	956680	956685	10	2 =
50	9.956684	956689	956694	956699	956704	956709	956714	956719	956724	956729	956734	956739	956744	9	3 =
51	9.956744	956749	956754	956759	956764	956769	956773	956778	956783	956788	956793	956798	956803	8	4 =
52	9.956803	956808	956813	956818	956823	956828	956833	956838	956843	956848	956853	956858	956863	7	1 =
53	9.956862	956867	956872	956877	956882	956887	956892	956897	956902	956907	956912	956917	956922	6	2 =
54	9.956922	956927	956932	956937	956942	956947	956952	956957	956962	956967	956972	956977	956982	5	3 =
55	9.956981	956986	956991	956996	957001	957006	957011	957016	957021	957026	957031	957036	957041	4	4 =
56	9.957040	957045	957050	957055	957060	957065	957070	957075	957080	957085	957090	957095	957100	3	1 =
57	9.957099	957104	957109	957114	957119	957123	957128	957133	957138	957143	957148	957153	957158	2	2 =
58	9.957158	957163	957168	957173	957178	957182	957187	957192	957197	957202	957207	957212	957217	1	3 =
59	9.957217	957222	957227	957232	957236	957241	957246	957251	957256	957261	957266	957271	957276	0	4 =
Minutes		60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proportional Parts
Co-sine of 25 degrees, or Sine of 115 degrees.															

LOGARITHMIC SINES.

Sine of 65 degrees, or Co-sine of 155 degrees.											Minutes	Proper parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
16 957281	957286	957290	957295	957300	957305	957310	957315	957320	957325	957330	59	1" = 1
15 957340	957344	957349	957354	957359	957364	957369	957374	957379	957384	957389	58	2. 2
13 957398	957403	957408	957413	957418	957423	957428	957433	957438	957444	957447	57	3. 3
12 957457	957462	957467	957472	957477	957482	957487	957491	957496	957501	957506	56	4. 4
11 957516	957521	957526	957531	957536	957540	957545	957550	957555	957560	957565	55	1" = 1
10 957575	957580	957584	957589	957594	957599	957604	957609	957614	957619	957624	54	2. 2
8 957633	957638	957643	957648	957653	957658	957663	957667	957672	957677	957682	53	3. 3
7 957692	957697	957702	957707	957711	957716	957721	957726	957731	957736	957741	52	4. 4
6 957750	957755	957760	957765	957770	957775	957780	957785	957790	957794	957799	51	1" = 1
4 957809	957814	957819	957824	957829	957833	957838	957843	957848	957853	957858	50	2. 2
3 957867	957872	957877	957882	957887	957892	957897	957902	957906	957911	957916	49	3. 3
1 957926	957931	957936	957941	957945	957950	957955	957960	957965	957970	957975	48	4. 4
19 957984	957989	957994	957999	958004	958009	958013	958018	958023	958028	958033	47	1" = 1
18 958043	958048	958052	958057	958062	958067	958072	958077	958082	958086	958091	46	2. 2
16 958101	958106	958111	958116	958120	958125	958130	958135	958140	958145	958150	45	3. 3
14 958159	958164	958169	958174	958179	958183	958188	958193	958198	958203	958208	44	4. 4
13 958217	958222	958227	958232	958237	958242	958247	958251	958256	958261	958266	43	1" = 1
11 958276	958280	958285	958290	958295	958300	958305	958310	958314	958319	958324	42	2. 2
9 958334	958339	958343	958348	958353	958358	958363	958368	958372	958377	958382	41	3. 3
7 958392	958397	958401	958406	958411	958416	958421	958426	958431	958435	958440	40	4. 4
5 958450	958455	958460	958464	958469	958474	958479	958484	958489	958493	958498	39	1" = 1
3 958508	958513	958517	958522	958527	958532	958537	958542	958546	958551	958556	38	2. 2
1 958566	958571	958575	958580	958585	958590	958595	958600	958604	958609	958614	37	3. 3
9 958624	958629	958633	958638	958643	958648	958653	958657	958662	958667	958672	36	4. 4
7 958682	958686	958691	958696	958701	958706	958710	958715	958720	958725	958730	35	1" = 1
5 958739	958744	958749	958754	958759	958763	958768	958773	958778	958783	958788	34	2. 2
3 958797	958802	958807	958812	958816	958821	958826	958831	958836	958840	958845	33	3. 3
1 958855	958860	958864	958869	958874	958879	958884	958889	958893	958898	958903	32	4. 4
8 958913	958917	958922	958927	958932	958937	958941	958946	958951	958956	958961	31	1" = 1
6 958970	958975	958980	958985	958990	958994	958999	959004	959009	959013	959018	30	2. 2
4 959028	959033	959037	959042	959047	959052	959057	959061	959066	959071	959076	29	3. 3
2 959085	959090	959095	959100	959104	959109	959114	959119	959124	959128	959133	28	4. 4
8 959143	959148	959152	959157	959162	959167	959172	959176	959181	959186	959191	27	1" = 1
6 959200	959205	959210	959215	959219	959224	959229	959234	959239	959243	959248	26	2. 2
4 959258	959263	959267	959272	959277	959282	959286	959291	959296	959301	959305	25	3. 3
2 959315	959320	959325	959329	959334	959339	959344	959348	959353	959358	959363	24	4. 4
8 959372	959377	959382	959387	959391	959396	959401	959406	959411	959415	959420	23	1" = 1
6 959430	959434	959439	959444	959449	959454	959458	959463	959468	959473	959477	22	2. 2
4 959487	959492	959496	959501	959506	959511	959515	959520	959525	959530	959535	21	3. 3
2 959544	959549	959554	959558	959563	959568	959573	959577	959582	959587	959592	20	4. 4
8 959601	959606	959611	959616	959620	959625	959630	959635	959639	959644	959649	19	1" = 1
6 959658	959663	959668	959673	959677	959682	959687	959692	959696	959701	959706	18	2. 2
4 959715	959720	959725	959730	959734	959739	959744	959749	959753	959758	959763	17	3. 3
2 959772	959777	959782	959787	959791	959796	959801	959806	959810	959815	959820	16	4. 4
8 959829	959834	959839	959844	959848	959853	959858	959863	959867	959872	959877	15	1" = 1
6 959886	959891	959896	959901	959905	959910	959915	959919	959924	959929	959934	14	2. 2
4 959943	959948	959953	959957	959962	959967	959972	959976	959981	959986	959991	13	3. 3
2 960000	960005	960009	960014	960019	960024	960028	960033	960038	960043	960047	12	4. 4
8 960057	960062	960066	960071	960076	960080	960085	960090	960095	960099	960104	11	1" = 1
6 960114	960118	960123	960128	960132	960137	960142	960147	960151	960156	960161	10	2. 2
4 960170	960175	960180	960184	960189	960194	960199	960203	960208	960213	960217	9	3. 3
2 960227	960232	960236	960241	960246	960251	960255	960260	960265	960269	960274	8	4. 4
8 960284	960288	960293	960298	960302	960307	960312	960317	960321	960326	960331	7	1" = 1
6 960340	960345	960350	960354	960359	960364	960368	960373	960378	960383	960387	6	2. 2
4 960397	960401	960406	960411	960415	960420	960425	960430	960434	960439	960444	5	3. 3
2 960453	960458	960463	960467	960472	960477	960481	960486	960491	960495	960500	4	4. 4
8 960510	960514	960519	960524	960528	960533	960538	960542	960547	960552	960557	3	1" = 1
6 960566	960571	960575	960580	960585	960589	960594	960599	960604	960608	960613	2	2. 2
4 960622	960627	960632	960636	960641	960646	960650	960655	960660	960665	960669	1	3. 3
2 960679	960683	960688	960693	960697	960702	960707	960711	960716	960721	960726	0	4. 4
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proper parts.
Co-sine of 24 degrees, or Sine of 114 degrees.											Minutes	Proper parts.

LOGARITHMIC SINES.

Sine of 66 degrees, or Co-sine of 156 degrees.													
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes
0	9.960730	960735	960740	960744	960749	960754	960758	960763	960768	960772	960777	960782	59
1	9.960786	960791	960796	960800	960805	960810	960815	960819	960824	960829	960833	960838	58
2	9.960843	960847	960852	960857	960861	960866	960871	960875	960880	960885	960889	960894	57
3	9.960899	960903	960908	960913	960917	960922	960927	960931	960936	960941	960945	960950	56
4	9.960955	960960	960964	960969	960974	960978	960983	960988	960992	960997	961001	961006	55
5	9.961011	961016	961020	961025	961030	961034	961039	961044	961048	961053	961058	961062	54
6	9.961067	961072	961076	961081	961086	961090	961095	961100	961104	961109	961114	961118	53
7	9.961123	961128	961132	961137	961142	961146	961151	961155	961160	961165	961169	961174	52
8	9.961179	961183	961188	961193	961197	961202	961207	961211	961216	961221	961225	961230	51
9	9.961235	961239	961244	961249	961253	961258	961263	961267	961272	961277	961281	961286	50
10	9.961290	961295	961300	961304	961309	961314	961318	961323	961328	961332	961337	961342	49
11	9.961346	961351	961356	961360	961365	961369	961374	961379	961383	961388	961393	961397	48
12	9.961402	961407	961411	961416	961421	961425	961430	961434	961439	961444	961448	961453	47
13	9.961458	961462	961467	961472	961476	961481	961486	961490	961495	961499	961504	961509	46
14	9.961513	961518	961523	961527	961532	961537	961541	961546	961550	961555	961560	961564	45
15	9.961569	961574	961578	961583	961587	961592	961597	961601	961606	961611	961615	961620	44
16	9.961625	961629	961634	961638	961643	961648	961652	961657	961662	961666	961671	961675	43
17	9.961680	961685	961689	961694	961699	961703	961708	961712	961717	961722	961726	961731	42
18	9.961736	961740	961745	961749	961754	961759	961763	961768	961772	961777	961782	961786	41
19	9.961791	961796	961800	961805	961809	961814	961819	961823	961828	961833	961837	961842	40
20	9.961846	961851	961856	961860	961865	961869	961874	961879	961883	961888	961892	961897	39
21	9.961902	961906	961911	961916	961920	961925	961929	961934	961939	961943	961948	961952	38
22	9.961957	961962	961966	961971	961975	961980	961985	961989	961994	961998	962003	962008	37
23	9.962012	962017	962021	962026	962031	962035	962040	962044	962049	962053	962058	962063	36
24	9.962067	962072	962077	962081	962086	962090	962095	962100	962104	962109	962113	962118	35
25	9.962123	962127	962132	962136	962141	962146	962150	962155	962159	962164	962169	962173	34
26	9.962178	962182	962187	962192	962196	962201	962205	962210	962214	962219	962224	962228	33
27	9.962233	962237	962242	962247	962251	962256	962260	962265	962270	962274	962279	962283	32
28	9.962288	962292	962297	962302	962306	962311	962315	962320	962325	962329	962334	962338	31
29	9.962343	962347	962352	962357	962361	962366	962370	962375	962380	962384	962389	962393	30
30	9.962398	962402	962407	962412	962416	962421	962425	962430	962434	962439	962443	962448	29
31	9.962453	962457	962462	962466	962471	962476	962480	962485	962489	962494	962498	962503	28
32	9.962508	962512	962517	962521	962526	962530	962535	962540	962544	962549	962553	962558	27
33	9.962562	962567	962572	962576	962581	962585	962590	962594	962599	962604	962608	962613	26
34	9.962617	962622	962626	962631	962635	962640	962645	962649	962654	962658	962663	962667	25
35	9.962672	962676	962681	962686	962690	962695	962700	962704	962708	962713	962718	962722	24
36	9.962727	962731	962736	962740	962745	962749	962754	962759	962763	962768	962772	962777	23
37	9.962781	962786	962790	962795	962799	962804	962809	962813	962818	962822	962827	962831	22
38	9.962836	962840	962845	962850	962854	962859	962863	962868	962872	962877	962881	962886	21
39	9.962890	962895	962900	962904	962909	962913	962918	962922	962927	962931	962936	962940	20
40	9.962945	962949	962954	962959	962963	962968	962972	962977	962981	962986	962990	962995	19
41	9.962999	963004	963009	963013	963018	963022	963027	963031	963036	963040	963045	963049	18
42	9.963054	963058	963063	963067	963072	963077	963081	963086	963090	963095	963099	963104	17
43	9.963108	963113	963117	963122	963126	963131	963135	963140	963144	963149	963154	963158	16
44	9.963163	963167	963172	963176	963181	963185	963190	963194	963199	963203	963208	963212	15
45	9.963217	963221	963226	963230	963235	963239	963244	963249	963253	963258	963262	963267	14
46	9.963271	963276	963280	963285	963289	963294	963298	963303	963307	963312	963316	963321	13
47	9.963325	963330	963334	963339	963343	963348	963352	963357	963361	963366	963370	963375	12
48	9.963380	963384	963389	963393	963398	963402	963407	963411	963416	963420	963425	963429	11
49	9.963434	963438	963443	963447	963452	963456	963461	963465	963470	963474	963479	963483	10
50	9.963488	963492	963497	963501	963506	963510	963515	963519	963524	963528	963533	963537	9
51	9.963542	963546	963551	963555	963560	963564	963569	963573	963578	963582	963587	963591	8
52	9.963596	963600	963605	963609	963614	963618	963623	963627	963632	963636	963641	963645	7
53	9.963650	963654	963659	963663	963668	963672	963677	963681	963686	963690	963695	963699	6
54	9.963704	963708	963713	963717	963722	963726	963731	963735	963740	963744	963748	963753	5
55	9.963757	963762	963766	963771	963775	963780	963784	963789	963793	963798	963802	963807	4
56	9.963811	963816	963820	963825	963829	963834	963838	963843	963847	963852	963856	963861	3
57	9.963865	963870	963874	963879	963883	963887	963892	963896	963901	963905	963910	963914	2
58	9.963919	963923	963928	963932	963937	963941	963946	963950	963955	963959	963964	963968	1
59	9.963972	963977	963981	963986	963990	963995	963999	964004	964008	964013	964017	964022	0
Minutes	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes
Co-sine of 23 degrees, or Sine of 113 degrees.													

• LOGARITHMIC SINES.

Sine of 67 degrees, or Co-sine of 157 degrees.												Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
26	964031	964035	964040	964044	964048	964053	964057	964062	964066	964071	964075	59	1" = 1
30	964084	964089	964093	964098	964102	964107	964111	964115	964120	964124	964129	58	2. 2
33	964138	964142	964147	964151	964156	964160	964165	964169	964173	964178	964182	57	3. 3
37	964191	964196	964200	964205	964209	964214	964218	964222	964227	964231	964236	56	4. 4
40	964245	964249	964254	964258	964263	964267	964271	964276	964280	964285	964289	55	1 = 1
44	964298	964303	964307	964312	964316	964320	964325	964329	964334	964338	964343	54	2. 2
47	964352	964356	964360	964365	964369	964374	964378	964383	964387	964392	964396	53	3. 3
50	964405	964409	964414	964418	964423	964427	964432	964436	964440	964445	964449	52	4. 4
54	964458	964463	964467	964471	964476	964480	964485	964489	964494	964498	964503	51	1 = 1
57	964511	964516	964520	964525	964529	964534	964538	964542	964547	964551	964556	50	2. 2
60	964565	964569	964574	964578	964582	964587	964591	964596	964600	964605	964609	49	3. 3
63	964618	964622	964627	964631	964636	964640	964644	964649	964653	964658	964662	48	4. 4
67	964671	964675	964680	964684	964689	964693	964697	964702	964706	964711	964715	47	1 = 1
70	964724	964728	964733	964737	964742	964746	964751	964755	964759	964764	964768	46	2. 2
73	964777	964781	964786	964790	964795	964799	964804	964808	964812	964817	964821	45	3. 3
76	964830	964834	964839	964843	964848	964852	964857	964861	964865	964870	964874	44	4. 4
79	964883	964887	964892	964896	964901	964905	964909	964914	964918	964923	964927	43	1 = 1
81	964938	964942	964947	964951	964956	964960	964965	964969	964974	964978	964983	42	2. 2
84	964989	964993	964998	965002	965006	965011	965015	965020	965024	965028	965033	41	3. 3
87	965042	965046	965050	965055	965059	965064	965068	965072	965077	965081	965086	40	4. 4
90	965094	965099	965103	965108	965112	965116	965121	965125	965130	965134	965138	39	1 = 1
93	965147	965151	965156	965160	965165	965169	965173	965178	965182	965187	965191	38	2. 2
96	965200	965204	965209	965213	965217	965222	965226	965230	965235	965239	965244	37	3. 3
98	965252	965257	965261	965266	965270	965274	965279	965283	965288	965292	965296	36	4. 4
101	965305	965309	965314	965318	965323	965327	965331	965336	965340	965344	965349	35	1 = 1
103	965358	965362	965366	965371	965375	965379	965384	965388	965393	965397	965401	34	2. 2
106	965410	965414	965419	965423	965428	965432	965436	965441	965445	965449	965454	33	3. 3
108	965463	965467	965471	965476	965480	965484	965489	965493	965498	965502	965506	32	4. 4
111	965515	965519	965524	965528	965532	965537	965541	965546	965550	965554	965559	31	1 = 1
113	965567	965572	965576	965581	965585	965589	965594	965598	965602	965607	965611	30	2. 2
115	965620	965624	965628	965633	965637	965642	965646	965650	965655	965659	965663	29	3. 3
118	965672	965676	965681	965685	965689	965694	965698	965703	965707	965711	965716	28	4. 4
121	965724	965729	965733	965737	965742	965746	965750	965755	965759	965763	965768	27	1 = 1
123	965777	965781	965785	965790	965794	965798	965803	965807	965811	965816	965820	26	2. 2
126	965829	965833	965837	965842	965846	965850	965855	965859	965863	965868	965872	25	3. 3
128	965881	965885	965889	965894	965898	965903	965907	965911	965916	965920	965924	24	4. 4
131	965933	965937	965942	965946	965950	965955	965959	965963	965968	965972	965976	23	1 = 1
133	965985	965989	965994	965998	966002	966007	966011	966015	966020	966024	966028	22	2. 2
136	966037	966041	966046	966050	966054	966059	966063	966067	966072	966076	966080	21	3. 3
138	966089	966093	966098	966102	966106	966111	966115	966119	966124	966128	966132	20	4. 4
141	966141	966145	966149	966154	966158	966162	966167	966171	966175	966180	966184	19	1 = 1
143	966193	966197	966201	966206	966210	966214	966219	966223	966227	966232	966236	18	2. 2
146	966245	966249	966253	966258	966262	966266	966270	966275	966279	966283	966288	17	3. 3
148	966296	966301	966305	966309	966314	966318	966322	966327	966331	966335	966339	16	4. 4
151	966348	966352	966357	966361	966365	966370	966374	966378	966383	966387	966391	15	1 = 1
153	966400	966404	966408	966413	966417	966421	966426	966430	966434	966439	966443	14	2. 2
156	966451	966456	966460	966464	966469	966473	966477	966482	966486	966490	966494	13	3. 3
158	966503	966507	966512	966516	966520	966525	966529	966533	966537	966542	966546	12	4. 4
161	966555	966559	966563	966568	966572	966576	966580	966585	966589	966593	966598	11	1 = 1
163	966606	966610	966615	966619	966623	966628	966632	966636	966640	966645	966649	10	2. 2
166	966658	966662	966666	966671	966675	966679	966683	966688	966692	966696	966701	9	3. 3
168	966709	966713	966718	966722	966726	966731	966735	966739	966743	966748	966752	8	4. 4
171	966760	966765	966769	966773	966778	966782	966786	966790	966795	966799	966803	7	1 = 1
173	966812	966816	966820	966825	966829	966833	966838	966842	966846	966850	966855	6	2. 2
176	966863	966867	966872	966876	966880	966885	966889	966893	966897	966902	966906	5	3. 3
178	966914	966919	966923	966927	966932	966936	966940	966944	966949	966953	966957	4	4. 4
181	966966	966970	966974	966978	966983	966987	966991	966996	967000	967004	967008	3	1 = 1
183	967017	967021	967025	967030	967034	967038	967042	967047	967051	967055	967059	2	2. 2
186	967068	967072	967077	967081	967085	967089	967094	967098	967102	967106	967111	1	3. 3
188	967119	967123	967128	967132	967136	967140	967145	967149	967153	967157	967162	0	4. 4
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°		Minutes	Proport. parts.
Co-sine of 22 degrees, or Sine of 112 degrees.													

LOGARITHMIC SINES.

Minutes	Sine of 68 degrees, or Co-sine of 158 degrees.												Minutes	Prop.	partes.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
0	9.967166	967170	967174	967179	967183	967187	967191	967196	967200	967204	967208	967213	59	1	1
1	9.967217	967221	967225	967230	967234	967238	967242	967247	967251	967255	967259	967264	58	2	1
2	9.967268	967272	967276	967281	967285	967289	967293	967298	967302	967306	967310	967315	57	3	1
3	9.967319	967323	967327	967332	967336	967340	967344	967349	967353	967357	967361	967365	56	4	1
4	9.967370	967374	967378	967382	967387	967391	967395	967399	967404	967408	967412	967416	55	1	1
5	9.967421	967425	967429	967433	967438	967442	967446	967450	967454	967459	967463	967467	54	2	1
6	9.967471	967476	967480	967484	967488	967493	967497	967501	967505	967509	967514	967518	53	3	1
7	9.967522	967526	967531	967535	967539	967543	967548	967552	967556	967560	967564	967569	52	4	1
8	9.967573	967577	967581	967586	967590	967594	967598	967602	967607	967611	967615	967619	51	1	1
9	9.967624	967628	967632	967636	967640	967645	967649	967653	967657	967662	967666	967670	50	2	1
10	9.967674	967678	967683	967687	967691	967695	967699	967704	967708	967712	967716	967721	49	3	1
11	9.967725	967729	967733	967737	967742	967746	967750	967754	967758	967763	967767	967771	48	4	1
12	9.967775	967780	967784	967788	967792	967796	967801	967805	967809	967813	967817	967822	47	1	1
13	9.967826	967830	967834	967838	967843	967847	967851	967855	967859	967864	967868	967872	46	2	1
14	9.967876	967881	967885	967889	967893	967897	967902	967906	967910	967914	967918	967923	45	3	1
15	9.967927	967931	967935	967939	967944	967948	967952	967956	967960	967965	967969	967973	44	4	1
16	9.967977	967981	967985	967990	967994	967998	968002	968006	968011	968015	968019	968023	43	1	1
17	9.968027	968032	968036	968040	968044	968048	968053	968057	968061	968065	968069	968074	42	2	1
18	9.968084	968088	968092	968096	968100	968104	968108	968112	968116	968120	968124	968129	41	3	1
19	9.968128	968132	968136	968141	968145	968149	968153	968157	968161	968166	968170	968174	40	4	1
20	9.968178	968182	968187	968191	968195	968199	968203	968207	968212	968216	968220	968224	39	1	1
21	9.968228	968233	968237	968241	968245	968249	968253	968258	968262	968266	968270	968274	38	2	1
22	9.968278	968283	968287	968291	968295	968299	968304	968308	968312	968316	968320	968324	37	3	1
23	9.968329	968333	968337	968341	968345	968349	968354	968358	968362	968366	968370	968374	36	4	1
24	9.968379	968383	968387	968391	968395	968399	968404	968408	968412	968416	968420	968424	35	1	1
25	9.968429	968433	968437	968441	968445	968449	968454	968458	968462	968466	968470	968474	34	2	1
26	9.968479	968483	968487	968491	968495	968499	968504	968508	968512	968516	968520	968524	33	3	1
27	9.968528	968533	968537	968541	968545	968549	968553	968558	968562	968566	968570	968574	32	4	1
28	9.968578	968582	968587	968591	968595	968599	968603	968607	968612	968616	968620	968624	31	1	1
29	9.968628	968632	968636	968641	968645	968649	968653	968657	968661	968666	968670	968674	30	2	1
30	9.968678	968682	968686	968690	968695	968699	968703	968707	968711	968715	968719	968724	29	3	1
31	9.968728	968732	968736	968740	968744	968748	968753	968757	968761	968765	968769	968773	28	4	1
32	9.968777	968782	968786	968790	968794	968798	968802	968806	968811	968815	968819	968823	27	1	1
33	9.968827	968831	968835	968839	968844	968848	968852	968856	968860	968864	968868	968873	26	2	1
34	9.968877	968881	968885	968889	968893	968897	968901	968906	968910	968914	968918	968922	25	3	1
35	9.968926	968930	968934	968939	968943	968947	968951	968955	968959	968963	968968	968972	24	4	1
36	9.968976	968980	968984	968988	968992	968996	969001	969005	969009	969013	969017	969021	23	1	1
37	9.969025	969029	969033	969038	969042	969046	969050	969054	969058	969062	969066	969071	22	2	1
38	9.969075	969079	969083	969087	969091	969095	969099	969104	969108	969112	969116	969120	21	3	1
39	9.969124	969128	969132	969136	969141	969145	969149	969153	969157	969161	969165	969169	20	4	1
40	9.969173	969178	969182	969186	969190	969194	969198	969202	969206	969210	969215	969219	19	1	1
41	9.969223	969227	969231	969235	969239	969243	969247	969252	969256	969260	969264	969268	18	2	1
42	9.969272	969276	969280	969284	969288	969293	969297	969301	969305	969309	969313	969317	17	3	1
43	9.969321	969325	969329	969334	969338	969342	969346	969350	969354	969358	969362	969366	16	4	1
44	9.969370	969375	969379	969383	969387	969391	969395	969399	969403	969407	969411	969416	15	1	1
45	9.969424	969428	969432	969436	969440	969444	969448	969452	969456	969461	969465	969469	14	2	1
46	9.969469	969473	969477	969481	969485	969489	969493	969497	969501	969506	969510	969514	13	3	1
47	9.969518	969522	969526	969530	969534	969538	969542	969546	969550	969555	969559	969563	12	4	1
48	9.969567	969571	969575	969579	969583	969587	969591	969595	969599	969604	969608	969612	11	1	1
49	9.969616	969620	969624	969628	969632	969636	969640	969644	969648	969653	969657	969661	10	2	1
50	9.969665	969669	969673	969677	969681	969685	969689	969693	969697	969701	969705	969710	9	3	1
51	9.969714	969718	969722	969726	969730	969734	969738	969742	969746	969750	969754	969758	8	4	1
52	9.969762	969767	969771	969775	969779	969783	969787	969791	969795	969799	969803	969807	7	1	1
53	9.969811	969815	969819	969823	969828	969832	969836	969840	969844	969848	969852	969856	6	2	1
54	9.969860	969864	969868	969872	969876	969880	969884	969888	969893	969897	969901	969905	5	3	1
55	9.969909	969913	969917	969921	969925	969929	969933	969937	969941	969945	969949	969953	4	4	1
56	9.969957	969962	969966	969970	969974	969978	969982	969986	969990	969994	969998	970002	3	1	1
57	9.970007	970011	970014	970018	970022	970026	970030	970034	970039	970043	970047	970051	2	2	1
58	9.970055	970059	970063	970067	970071	970075	970079	970083	970087	970091	970095	970099	1	3	1
59	9.970103	970107	970111	970115	970119	970123	970127	970131	970135	970139	970143	970147	0	4	1
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Prop.	partes.
Co-sine of 21 degrees, or Sine of 111 degrees.															

LOGARITHMIC SINES.

Sine of 69 degrees, or Co-sine of 159 degrees.											Minute	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
152	970156	970160	970164	970168	970172	970176	970180	970184	970188	970192	59	1" = 1
100	970204	970208	970212	970216	970220	970224	970228	970232	970236	970240	58	2. 2
149	970253	970257	970261	970265	970269	970273	970277	970281	970285	970289	57	3. 2
197	970301	970305	970309	970313	970317	970321	970325	970329	970333	970337	56	4. 3
145	970349	970353	970357	970361	970365	970369	970373	970377	970381	970385	55	1" = 1
194	970398	970402	970406	970410	970414	970418	970422	970426	970430	970434	54	2. 2
142	970446	970450	970454	970458	970462	970466	970470	970474	970478	970482	53	3. 2
190	970494	970498	970502	970506	970510	970514	970518	970522	970526	970530	52	4. 3
138	970542	970546	970550	970554	970558	970562	970566	970570	970574	970578	51	1" = 1
187	970591	970595	970599	970603	970607	970611	970615	970619	970623	970627	50	2. 2
135	970639	970643	970647	970651	970655	970659	970663	970667	970671	970675	49	3. 2
183	970687	970691	970695	970699	970703	970707	970711	970715	970719	970723	48	4. 3
131	970735	970739	970743	970747	970751	970755	970759	970763	970767	970771	47	1" = 1
179	970783	970787	970791	970795	970799	970803	970807	970811	970815	970819	46	2. 2
127	970831	970835	970839	970843	970847	970851	970855	970859	970863	970867	45	3. 2
174	970878	970882	970886	970890	970894	970898	970902	970906	970910	970914	44	4. 3
122	970926	970930	970934	970938	970942	970946	970950	970954	970958	970962	43	1" = 1
170	970974	970978	970982	970986	970990	970994	970998	971002	971006	971010	42	2. 2
118	971022	971026	971030	971034	971038	971042	971046	971050	971054	971058	41	3. 2
166	971070	971074	971078	971082	971086	971090	971094	971098	971102	971106	40	4. 3
113	971117	971121	971125	971129	971133	971137	971141	971145	971149	971153	39	1" = 1
161	971165	971169	971173	971177	971181	971185	971189	971193	971197	971201	38	2. 2
108	971212	971216	971220	971224	971228	971232	971236	971240	971244	971248	37	3. 2
156	971260	971264	971268	971272	971276	971280	971284	971288	971292	971296	36	4. 3
104	971307	971311	971315	971319	971323	971327	971331	971335	971339	971343	35	1" = 1
151	971355	971359	971363	971367	971371	971375	971379	971383	971387	971391	34	2. 2
149	971402	971406	971410	971414	971418	971422	971426	971430	971434	971438	33	3. 2
146	971450	971454	971458	971462	971466	971470	971474	971478	971482	971486	32	4. 3
193	971497	971501	971505	971509	971513	971517	971521	971525	971529	971533	31	1" = 1
140	971544	971548	971552	971556	971560	971564	971568	971572	971576	971580	30	2. 2
138	971592	971596	971600	971604	971608	971612	971616	971620	971624	971628	29	3. 2
135	971639	971643	971647	971651	971655	971659	971663	971667	971671	971675	28	4. 3
182	971686	971690	971694	971698	971702	971706	971710	971714	971718	971722	27	1" = 1
129	971733	971737	971741	971745	971749	971753	971757	971761	971765	971769	26	2. 2
176	971780	971784	971788	971792	971796	971800	971804	971808	971812	971816	25	3. 2
123	971827	971831	971835	971839	971843	971847	971851	971855	971859	971863	24	4. 3
170	971874	971878	971882	971886	971890	971894	971898	971902	971906	971910	23	1" = 1
117	971921	971925	971929	971933	971937	971941	971945	971949	971953	971957	22	2. 2
164	971968	971972	971976	971980	971984	971988	971992	971996	972000	972004	21	3. 2
111	972015	972019	972023	972027	972031	972035	972039	972043	972047	972051	20	4. 3
158	972062	972066	972070	972074	972078	972082	972086	972090	972094	972098	19	1" = 1
105	972109	972113	972117	972121	972125	972129	972133	972137	972141	972145	18	2. 2
151	972155	972159	972163	972167	972171	972175	972179	972183	972187	972191	17	3. 2
148	972202	972206	972210	972214	972218	972222	972226	972230	972234	972238	16	4. 3
145	972249	972253	972257	972261	972265	972269	972273	972277	972281	972285	15	1" = 1
191	972295	972299	972303	972307	972311	972315	972319	972323	972327	972331	14	2. 2
138	972342	972346	972350	972354	972358	972362	972366	972370	972374	972378	13	3. 2
185	972388	972392	972396	972400	972404	972408	972412	972416	972420	972424	12	4. 3
131	972435	972439	972443	972447	972451	972455	972459	972463	972467	972471	11	1" = 1
178	972481	972485	972489	972493	972497	972501	972505	972509	972513	972517	10	2. 2
124	972528	972532	972536	972540	972544	972548	972552	972556	972560	972564	9	3. 2
170	972574	972578	972582	972586	972590	972594	972598	972602	972606	972610	8	4. 3
117	972621	972625	972629	972633	972637	972641	972645	972649	972653	972657	7	1" = 1
163	972667	972671	972675	972679	972683	972687	972691	972695	972699	972703	6	2. 2
109	972713	972717	972721	972725	972729	972733	972737	972741	972745	972749	5	3. 2
155	972759	972763	972767	972771	972775	972779	972783	972787	972791	972795	4	4. 3
102	972805	972809	972813	972817	972821	972825	972829	972833	972837	972841	3	1" = 1
148	972851	972855	972859	972863	972867	972871	972875	972879	972883	972887	2	2. 2
194	972898	972902	972906	972910	972914	972918	972922	972926	972930	972934	1	3. 2
140	972944	972948	972952	972956	972960	972964	972968	972972	972976	972980	0	4. 3
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minute	Proport. parts.
Co-sine of 20 degrees, or Sine of 110 degrees.											Minute	Proport. parts.

LOGARITHMIC SINES.

Sine of 70 degrees, or Co-sine of 160 degrees.														Minutes	Proport. Parts.
Minutes	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
0	9.972986	972990	972994	972997	973001	973005	973009	973013	973017	973020	973024	973028	59	1 =	
1	9.973032	973036	973039	973043	973047	973051	973055	973059	973062	973066	973070	973074	58	2 =	
2	9.973078	973082	973085	973089	973093	973097	973101	973105	973108	973112	973116	973120	57	3 =	
3	9.973124	973127	973131	973135	973139	973143	973147	973150	973154	973158	973162	973166	56	4 =	
4	9.973169	973173	973177	973181	973185	973189	973193	973196	973200	973204	973208	973211	55	1 =	
5	9.973215	973219	973223	973227	973231	973234	973238	973242	973246	973250	973253	973257	54	2 =	
6	9.973261	973265	973269	973272	973276	973280	973284	973288	973291	973295	973299	973303	53	3 =	
7	9.973307	973311	973314	973318	973322	973326	973330	973333	973337	973341	973345	973349	52	4 =	
8	9.973352	973356	973360	973364	973368	973371	973375	973379	973383	973387	973390	973394	51	1 =	
9	9.973398	973402	973406	973409	973413	973417	973421	973425	973428	973432	973436	973440	50	2 =	
10	9.973444	973447	973451	973455	973459	973463	973466	973470	973474	973478	973482	973485	49	3 =	
11	9.973489	973493	973497	973501	973504	973508	973512	973516	973519	973523	973527	973531	48	4 =	
12	9.973535	973538	973542	973546	973550	973554	973557	973561	973565	973569	973573	973576	47	1 =	
13	9.973580	973584	973588	973591	973595	973599	973603	973607	973610	973614	973618	973622	46	2 =	
14	9.973626	973629	973633	973637	973641	973644	973648	973652	973656	973660	973663	973667	45	3 =	
15	9.973671	973675	973678	973682	973686	973690	973694	973697	973701	973705	973709	973712	44	4 =	
16	9.973716	973720	973724	973728	973731	973735	973739	973743	973746	973750	973754	973758	43	1 =	
17	9.973762	973765	973769	973773	973777	973780	973784	973788	973792	973795	973799	973803	42	2 =	
18	9.973807	973811	973814	973818	973822	973826	973829	973833	973837	973841	973844	973848	41	3 =	
19	9.973852	973856	973860	973863	973867	973871	973875	973878	973882	973886	973890	973893	40	4 =	
20	9.973897	973901	973905	973908	973912	973916	973920	973924	973927	973931	973935	973939	39	1 =	
21	9.973942	973946	973950	973954	973957	973961	973965	973969	973972	973976	973980	973984	38	2 =	
22	9.973987	973991	973995	973999	974002	974006	974010	974014	974017	974021	974025	974029	37	3 =	
23	9.974032	974036	974040	974044	974047	974051	974055	974059	974062	974066	974070	974074	36	4 =	
24	9.974077	974081	974085	974089	974092	974096	974100	974104	974107	974111	974115	974119	35	1 =	
25	9.974122	974126	974130	974134	974137	974141	974145	974149	974152	974156	974160	974164	34	2 =	
26	9.974167	974171	974175	974179	974182	974186	974190	974194	974197	974201	974205	974208	33	3 =	
27	9.974212	974216	974220	974223	974227	974231	974235	974238	974242	974246	974250	974253	32	4 =	
28	9.974257	974261	974265	974268	974272	974276	974279	974283	974287	974291	974294	974298	31	1 =	
29	9.974302	974306	974309	974313	974317	974320	974324	974328	974332	974335	974339	974343	30	2 =	
30	9.974347	974350	974354	974358	974362	974365	974369	974373	974376	974380	974384	974388	29	3 =	
31	9.974391	974395	974399	974402	974406	974410	974414	974417	974421	974425	974429	974432	28	4 =	
32	9.974436	974440	974444	974447	974451	974455	974458	974462	974466	974469	974473	974477	27	1 =	
33	9.974481	974484	974488	974492	974495	974499	974503	974507	974510	974514	974518	974522	26	2 =	
34	9.974525	974529	974533	974536	974540	974544	974547	974551	974555	974559	974562	974566	25	3 =	
35	9.974570	974573	974577	974581	974585	974588	974592	974596	974599	974603	974607	974611	24	4 =	
36	9.974614	974618	974622	974625	974629	974633	974637	974640	974644	974648	974651	974655	23	1 =	
37	9.974659	974662	974666	974670	974674	974677	974681	974685	974688	974692	974696	974699	22	2 =	
38	9.974703	974707	974711	974714	974718	974722	974725	974729	974733	974736	974740	974744	21	3 =	
39	9.974748	974751	974755	974759	974762	974766	974770	974773	974777	974781	974785	974788	20	4 =	
40	9.974792	974796	974799	974803	974807	974810	974814	974818	974821	974825	974829	974833	19	1 =	
41	9.974836	974840	974844	974847	974851	974855	974858	974862	974866	974869	974873	974877	18	2 =	
42	9.974880	974884	974888	974892	974895	974899	974903	974906	974910	974914	974917	974921	17	3 =	
43	9.974925	974928	974932	974936	974939	974943	974947	974950	974954	974958	974961	974965	16	4 =	
44	9.974969	974973	974976	974980	974984	974987	974991	974995	974998	975002	975006	975009	15	1 =	
45	9.975013	975017	975020	975024	975028	975031	975035	975039	975042	975046	975050	975053	14	2 =	
46	9.975057	975061	975064	975068	975072	975075	975079	975083	975086	975090	975094	975097	13	3 =	
47	9.975101	975105	975108	975112	975116	975119	975123	975127	975130	975134	975138	975141	12	4 =	
48	9.975145	975149	975152	975156	975160	975163	975167	975171	975174	975178	975182	975185	11	1 =	
49	9.975189	975193	975196	975200	975204	975207	975211	975215	975218	975222	975226	975229	10	2 =	
50	9.975233	975237	975240	975244	975248	975251	975255	975259	975262	975266	975270	975273	9	3 =	
51	9.975277	975281	975284	975288	975292	975295	975299	975303	975306	975310	975313	975317	8	4 =	
52	9.975321	975324	975328	975332	975335	975339	975343	975346	975350	975354	975357	975361	7	1 =	
53	9.975365	975368	975372	975376	975379	975383	975387	975390	975394	975397	975401	975405	6	2 =	
54	9.975408	975412	975416	975419	975423	975427	975430	975434	975438	975441	975445	975448	5	3 =	
55	9.975452	975456	975459	975463	975467	975470	975474	975478	975481	975485	975489	975492	4	4 =	
56	9.975496	975499	975503	975507	975510	975514	975518	975521	975525	975529	975532	975536	3	1 =	
57	9.975539	975543	975547	975550	975554	975558	975561	975565	975569	975572	975576	975579	2	2 =	
58	9.975583	975587	975590	975594	975598	975601	975605	975608	975612	975616	975619	975623	1	3 =	
59	9.975627	975630	975634	975637	975641	975645	975648	975652	975656	975659	975663	975666	0	4 =	
	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°			
Co-sine of 190 degrees, or Sine of 109 degrees.															
Minutes													Minutes	Proport. Parts.	

Co-sine of 19 degrees, or Sine of 109 degrees.

LOGARITHMIC SINES

Sine of 71 degrees, or Co-sine of 161 degrees.											Minute	Proper parts.
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
5670	975674	975677	975681	975685	975688	975692	975695	975699	975703	975706	59	1" = 1
5714	975717	975721	975724	975728	975732	975735	975739	975743	975746	975750	58	2. 1
5757	975761	975764	975768	975772	975775	975779	975782	975786	975790	975793	57	3. 2
5800	975804	975808	975811	975815	975818	975822	975826	975829	975833	975837	56	4. 3
5844	975847	975851	975855	975858	975862	975865	975869	975873	975876	975880	55	1 = 1
5887	975891	975894	975898	975902	975905	975909	975912	975916	975920	975923	54	2. 1
5930	975934	975938	975941	975945	975948	975952	975956	975959	975963	975966	53	3. 2
5974	975977	975981	975984	975988	975992	975995	975999	976002	976006	976010	52	4. 3
6017	976020	976024	976028	976031	976035	976038	976042	976046	976049	976053	51	1 = 1
6060	976064	976067	976071	976074	976078	976082	976085	976089	976092	976096	50	2. 1
6103	976107	976110	976114	976117	976121	976125	976128	976132	976135	976139	49	3. 2
6146	976150	976153	976157	976160	976164	976168	976171	976175	976178	976182	48	4. 3
6189	976193	976196	976200	976203	976207	976211	976214	976218	976221	976225	47	1 = 1
6232	976236	976239	976243	976246	976250	976254	976257	976261	976264	976268	46	2. 1
6275	976279	976282	976286	976289	976293	976297	976300	976304	976307	976311	45	3. 2
6318	976322	976325	976329	976332	976336	976339	976343	976347	976350	976354	44	4. 3
6361	976364	976368	976372	976375	976379	976382	976386	976389	976393	976397	43	1 = 1
6404	976407	976411	976414	976418	976422	976425	976429	976432	976436	976439	42	2. 1
6446	976450	976454	976457	976461	976464	976468	976471	976475	976479	976482	41	3. 2
6489	976493	976496	976500	976503	976507	976511	976514	976518	976521	976525	40	4. 3
6532	976535	976539	976543	976546	976550	976553	976557	976560	976564	976567	39	1 = 1
6575	976578	976582	976585	976589	976592	976596	976599	976603	976607	976610	38	2. 1
6617	976621	976624	976628	976631	976635	976638	976642	976646	976649	976653	37	3. 2
6660	976663	976667	976670	976674	976677	976681	976685	976688	976692	976696	36	4. 3
6702	976706	976709	976713	976716	976720	976724	976727	976731	976734	976738	35	1 = 1
6745	976748	976752	976755	976759	976762	976766	976770	976773	976777	976780	34	2. 1
6787	976791	976794	976798	976801	976805	976808	976812	976816	976819	976823	33	3. 2
6830	976833	976837	976840	976844	976847	976851	976854	976858	976861	976865	32	4. 3
6872	976876	976879	976883	976886	976890	976893	976897	976900	976904	976907	31	1 = 1
6914	976918	976921	976925	976928	976932	976935	976939	976943	976946	976950	30	2. 1
6957	976960	976964	976967	976971	976974	976978	976981	976985	976988	976992	29	3. 2
7000	977002	977006	977009	977013	977016	977020	977024	977027	977031	977034	28	4. 3
7041	977045	977048	977052	977055	977059	977062	977066	977069	977073	977076	27	1 = 1
7083	977087	977090	977094	977097	977101	977104	977108	977111	977115	977118	26	2. 1
7125	977129	977132	977136	977139	977143	977146	977150	977153	977157	977160	25	3. 2
7167	977171	977174	977178	977181	977185	977188	977192	977195	977199	977202	24	4. 3
7209	977213	977216	977220	977223	977227	977230	977234	977237	977241	977244	23	1 = 1
7251	977255	977258	977262	977265	977269	977272	977276	977279	977283	977286	22	2. 1
7293	977297	977300	977304	977307	977311	977314	977318	977321	977325	977328	21	3. 2
7335	977339	977342	977346	977349	977353	977356	977360	977363	977367	977370	20	4. 3
7377	977381	977384	977388	977391	977395	977398	977402	977405	977409	977412	19	1 = 1
7419	977423	977426	977430	977433	977437	977440	977444	977447	977450	977454	18	2. 1
7461	977464	977468	977471	977475	977478	977482	977485	977489	977492	977496	17	3. 2
7503	977506	977510	977513	977517	977520	977524	977527	977531	977534	977537	16	4. 3
7544	977548	977551	977555	977558	977562	977565	977569	977572	977576	977579	15	1 = 1
7586	977590	977593	977597	977600	977603	977607	977610	977614	977617	977621	14	2. 1
7628	977631	977635	977638	977642	977645	977649	977652	977655	977659	977662	13	3. 2
7669	977673	977676	977680	977683	977687	977690	977694	977697	977700	977704	12	4. 3
7711	977714	977718	977721	977725	977728	977732	977735	977739	977742	977745	11	1 = 1
7752	977756	977759	977763	977766	977770	977773	977777	977780	977784	977787	10	2. 1
7794	977797	977801	977804	977808	977811	977815	977818	977821	977825	977828	9	3. 2
7835	977839	977842	977846	977849	977853	977856	977859	977863	977866	977870	8	4. 3
7877	977880	977884	977887	977890	977894	977897	977901	977904	977908	977911	7	1 = 1
7918	977921	977925	977928	977932	977935	977939	977942	977946	977949	977953	6	2. 1
7959	977963	977966	977970	977973	977977	977980	977983	977987	977990	977994	5	3. 2
8001	978004	978008	978011	978014	978018	978021	978025	978028	978032	978035	4	4. 3
8042	978045	978049	978052	978056	978059	978062	978066	978069	978073	978076	3	1 = 1
8083	978086	978090	978093	978097	978100	978104	978107	978110	978114	978117	2	2. 1
8124	978128	978131	978134	978138	978141	978145	978148	978152	978155	978158	1	3. 2
8165	978169	978172	978176	978179	978182	978186	978189	978193	978196	978200	0	4. 3
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minute	Proper parts.
Co-sine of 18 degrees, or Sine of 108 degrees.												

LOGARITHMIC SINES.

Sine of 72 degrees, or Co-sine of 162 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proport.
0	9.978206	978210	978213	978217	978220	978223	978227	978230	978234	978237	978241	978244	59	1 = 1
1	9.978247	978251	978254	978258	978261	978264	978268	978271	978275	978278	978282	978285	58	2. 1
2	9.978288	978292	978295	978299	978302	978305	978309	978312	978316	978319	978323	978326	57	3. 2
3	9.978320	978333	978336	978340	978343	978346	978350	978353	978357	978360	978363	978367	56	4. 3
4	9.978370	978374	978377	978380	978384	978387	978391	978394	978397	978401	978404	978408	55	1 = 1
5	9.978411	978415	978418	978421	978425	978428	978432	978435	978438	978442	978445	978449	54	2. 1
6	9.978452	978455	978459	978462	978466	978469	978472	978476	978479	978483	978486	978489	53	3. 2
7	9.978493	978496	978500	978503	978506	978510	978513	978516	978520	978523	978527	978530	52	4. 3
8	9.978533	978537	978540	978544	978547	978550	978554	978557	978561	978564	978567	978571	51	1 = 1
9	9.978574	978578	978581	978584	978588	978591	978594	978598	978601	978605	978608	978611	50	2. 1
10	9.978615	978618	978622	978625	978628	978632	978635	978639	978642	978645	978649	978652	49	3. 2
11	9.978655	978659	978662	978666	978669	978672	978676	978679	978682	978686	978689	978693	48	4. 3
12	9.978696	978699	978703	978706	978710	978713	978716	978720	978723	978726	978730	978733	47	1 = 1
13	9.978737	978740	978743	978747	978750	978753	978757	978760	978764	978767	978770	978774	46	2. 1
14	9.978777	978780	978784	978787	978791	978794	978797	978801	978804	978807	978811	978814	45	3. 2
15	9.978815	978818	978822	978825	978828	978831	978834	978838	978841	978844	978848	978851	44	4. 3
16	9.978858	978861	978865	978868	978871	978875	978878	978881	978885	978888	978892	978895	43	1 = 1
17	9.978898	978902	978905	978908	978912	978915	978918	978922	978925	978929	978932	978935	42	2. 1
18	9.978939	978942	978945	978949	978952	978955	978959	978962	978966	978969	978972	978976	41	3. 2
19	9.978979	978982	978986	978989	978992	978996	978999	979002	979006	979009	979013	979016	40	4. 3
20	9.979019	979023	979026	979029	979033	979036	979039	979043	979046	979049	979053	979056	39	1 = 1
21	9.979059	979063	979066	979069	979073	979076	979080	979083	979086	979090	979093	979096	38	2. 1
22	9.979100	979103	979106	979110	979113	979116	979120	979123	979126	979130	979133	979136	37	3. 2
23	9.979140	979143	979146	979150	979153	979156	979160	979163	979166	979170	979173	979176	36	4. 3
24	9.979180	979183	979187	979190	979193	979197	979200	979203	979207	979210	979213	979217	35	1 = 1
25	9.979220	979223	979227	979230	979233	979237	979240	979243	979247	979250	979253	979257	34	2. 1
26	9.979260	979263	979267	979270	979273	979277	979280	979283	979287	979290	979293	979297	33	3. 2
27	9.979300	979303	979307	979310	979313	979317	979320	979323	979327	979330	979333	979336	32	4. 3
28	9.979340	979343	979346	979350	979353	979356	979360	979363	979366	979370	979373	979376	31	1 = 1
29	9.979380	979383	979386	979390	979393	979396	979400	979403	979406	979410	979413	979416	30	2. 1
30	9.979420	979423	979426	979430	979433	979436	979439	979443	979446	979449	979453	979456	29	3. 2
31	9.979459	979463	979466	979469	979473	979476	979479	979483	979486	979489	979493	979496	28	4. 3
32	9.979499	979502	979506	979509	979512	979516	979519	979522	979526	979529	979532	979536	27	1 = 1
33	9.979539	979542	979545	979549	979552	979555	979559	979562	979565	979569	979572	979575	26	2. 1
34	9.979579	979582	979585	979588	979592	979595	979598	979602	979605	979608	979612	979615	25	3. 2
35	9.979618	979622	979625	979628	979631	979635	979638	979641	979645	979648	979651	979655	24	4. 3
36	9.979658	979661	979664	979668	979671	979674	979678	979681	979684	979687	979691	979694	23	1 = 1
37	9.979697	979701	979704	979707	979711	979714	979717	979720	979724	979727	979730	979734	22	2. 1
38	9.979737	979740	979744	979747	979750	979753	979757	979760	979763	979767	979770	979773	21	3. 2
39	9.979776	979780	979783	979786	979790	979793	979796	979799	979803	979806	979809	979813	20	4. 3
40	9.979816	979819	979822	979826	979829	979832	979836	979839	979842	979845	979849	979852	19	1 = 1
41	9.979855	979859	979862	979865	979868	979872	979875	979878	979882	979885	979888	979891	18	2. 1
42	9.979895	979898	979901	979904	979908	979911	979914	979918	979921	979924	979927	979931	17	3. 2
43	9.979934	979937	979941	979944	979947	979950	979954	979957	979960	979963	979967	979970	16	4. 3
44	9.979973	979977	979980	979983	979986	979990	979993	979996	979999	980002	980006	980009	15	1 = 1
45	9.980012	980016	980019	980022	980026	980029	980032	980035	980039	980042	980045	980048	14	2. 1
46	9.980052	980055	980058	980061	980065	980068	980071	980075	980078	980081	980084	980088	13	3. 2
47	9.980091	980094	980097	980101	980104	980107	980110	980114	980117	980120	980123	980127	12	4. 3
48	9.980130	980133	980137	980140	980143	980146	980150	980153	980156	980159	980163	980166	11	1 = 1
49	9.980169	980172	980176	980179	980182	980185	980189	980192	980195	980198	980202	980205	10	2. 1
50	9.980208	980211	980215	980218	980221	980224	980228	980231	980234	980237	980241	980244	9	3. 2
51	9.980247	980250	980254	980257	980260	980263	980267	980270	980273	980276	980280	980283	8	4. 3
52	9.980286	980289	980293	980296	980299	980302	980306	980309	980312	980315	980319	980322	7	1 = 1
53	9.980325	980328	980332	980335	980338	980341	980344	980348	980351	980354	980357	980361	6	2. 1
54	9.980364	980367	980370	980374	980377	980380	980383	980387	980390	980393	980396	980400	5	3. 2
55	9.980403	980406	980409	980412	980416	980419	980422	980425	980429	980432	980435	980438	4	4. 3
56	9.980442	980445	980448	980451	980454	980458	980461	980464	980467	980471	980474	980477	3	1 = 1
57	9.980480	980484	980487	980490	980493	980496	980500	980503	980506	980509	980513	980516	2	2. 1
58	9.980519	980522	980525	980529	980532	980535	980538	980542	980545	980548	980551	980555	1	3. 2
59	9.980558	980561	980564	980567	980571	980574	980577	980580	980583	980587	980590	980593	0	4. 3
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport.
Co-sine of 17 degrees, or Sine of 107 degrees.														

LOGARITHMIC SINES.

Sine of 73 degrees, or Co-sine of 163 degrees.											Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
96	980600	980603	980606	980609	980612	980616	980619	980622	980625	980629	59	1" = 1
35	980638	980641	980645	980648	980651	980654	980657	980661	980664	980667	58	2. 1
74	980677	980680	980683	980686	980690	980693	980696	980699	980702	980706	57	3. 2
13	980715	980718	980722	980725	980728	980731	980735	980738	980741	980744	56	4. 3
51	980754	980757	980760	980763	980767	980770	980773	980776	980779	980783	55	1" = 1
89	980792	980795	980799	980802	980805	980808	980811	980815	980818	980821	54	2. 1
27	980831	980834	980837	980840	980843	980847	980850	980853	980856	980859	53	3. 2
66	980869	980872	980875	980879	980882	980885	980888	980891	980894	980898	52	4. 3
04	980907	980910	980914	980917	980920	980923	980926	980930	980933	980936	51	1" = 1
43	980946	980949	980952	980955	980958	980961	980965	980968	980971	980974	50	2. 1
81	980984	980987	980990	980993	980997	981000	981003	981006	981009	981012	49	3. 2
19	981022	981025	981028	981032	981035	981038	981041	981044	981047	981051	48	4. 3
57	981060	981063	981066	981070	981073	981076	981079	981082	981086	981089	47	1" = 1
95	981098	981101	981105	981108	981111	981114	981117	981120	981124	981127	46	2. 1
33	981136	981140	981143	981146	981149	981152	981155	981159	981162	981165	45	3. 2
71	981174	981178	981181	981184	981187	981190	981193	981197	981200	981203	44	4. 3
09	981212	981216	981219	981222	981225	981228	981231	981235	981238	981241	43	1" = 1
47	981250	981253	981257	981260	981263	981266	981269	981272	981276	981279	42	2. 1
85	981288	981291	981295	981298	981301	981304	981307	981310	981313	981317	41	3. 2
23	981326	981329	981332	981336	981339	981342	981345	981348	981351	981355	40	4. 3
61	981364	981367	981370	981373	981377	981380	981383	981386	981389	981392	39	1" = 1
99	981402	981405	981408	981411	981414	981417	981421	981424	981427	981430	38	2. 1
37	981440	981443	981446	981449	981452	981455	981458	981462	981465	981468	37	3. 2
74	981477	981480	981484	981487	981490	981493	981496	981499	981502	981505	36	4. 3
12	981515	981518	981521	981524	981527	981531	981534	981537	981540	981543	35	1" = 1
50	981553	981556	981559	981562	981565	981568	981571	981574	981578	981581	34	2. 1
87	981590	981593	981596	981600	981603	981606	981609	981612	981615	981618	33	3. 2
25	981628	981631	981634	981637	981640	981643	981646	981650	981653	981656	32	4. 3
62	981665	981668	981671	981675	981678	981681	981684	981687	981690	981693	31	1" = 1
99	981703	981706	981709	981712	981715	981718	981721	981725	981728	981731	30	2. 1
37	981740	981743	981746	981749	981753	981756	981759	981762	981765	981768	29	3. 2
74	981778	981781	981784	981787	981790	981793	981796	981799	981802	981806	28	4. 3
12	981815	981818	981821	981824	981827	981830	981834	981837	981840	981843	27	1" = 1
50	981852	981855	981858	981862	981865	981868	981871	981874	981877	981880	26	2. 1
87	981889	981893	981896	981899	981902	981905	981908	981911	981914	981917	25	3. 2
24	981927	981930	981933	981936	981939	981942	981945	981948	981952	981955	24	4. 3
61	981964	981967	981970	981973	981976	981979	981983	981986	981989	981992	23	1" = 1
99	982001	982004	982007	982010	982013	982017	982020	982023	982026	982029	22	2. 1
37	982038	982041	982044	982047	982051	982054	982057	982060	982063	982066	21	3. 2
74	982075	982078	982081	982085	982088	982091	982094	982097	982100	982103	20	4. 3
12	982112	982115	982118	982122	982125	982128	982131	982134	982137	982140	19	1" = 1
50	982149	982152	982155	982159	982162	982165	982168	982171	982174	982177	18	2. 1
87	982186	982189	982192	982196	982199	982202	982205	982208	982211	982214	17	3. 2
24	982223	982226	982229	982232	982235	982239	982242	982245	982248	982251	16	4. 3
61	982260	982263	982266	982269	982272	982275	982278	982282	982285	982288	15	1" = 1
99	982297	982300	982303	982306	982309	982312	982315	982318	982321	982325	14	2. 1
37	982334	982337	982340	982343	982346	982349	982352	982355	982358	982361	13	3. 2
74	982370	982374	982377	982380	982383	982386	982389	982392	982395	982398	12	4. 3
12	982407	982410	982413	982416	982419	982422	982426	982429	982432	982435	11	1" = 1
50	982444	982447	982450	982453	982456	982459	982462	982465	982468	982471	10	2. 1
87	982481	982484	982487	982490	982493	982496	982499	982502	982505	982508	9	3. 2
24	982517	982520	982523	982526	982529	982532	982535	982538	982541	982545	8	4. 3
61	982554	982557	982560	982563	982566	982569	982572	982575	982578	982581	7	1" = 1
99	982590	982593	982596	982599	982602	982605	982608	982611	982615	982618	6	2. 1
37	982627	982630	982633	982636	982639	982642	982645	982648	982651	982654	5	3. 2
74	982663	982666	982669	982672	982675	982678	982681	982684	982687	982690	4	4. 3
12	982700	982703	982706	982709	982712	982715	982718	982721	982724	982727	3	1" = 1
50	982736	982739	982742	982745	982748	982751	982754	982757	982760	982763	2	2. 1
87	982772	982775	982778	982781	982784	982787	982790	982793	982796	982799	1	3. 2
24	982808	982811	982815	982818	982821	982824	982827	982830	982833	982836	0	4. 3
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.
Co-sine of 16 degrees, or Sine of 106 degrees.											Minutes	Proport. parts.

LOGARITHMIC SINES.

Minutes	Sine of 74 degrees, or Co-sine of 164 degrees.												Minutes	Propor- tion.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	9.982842	982845	982848	982851	982854	982857	982860	982863	982866	982869	982872	982875	59	1" = 1
1	9.982878	982881	982884	982887	982890	982893	982896	982899	982902	982905	982908	982911	58	2. 1
2	9.982914	982917	982920	982923	982926	982929	982932	982935	982938	982941	982944	982947	57	3. 1
3	9.982950	982953	982956	982959	982962	982965	982968	982971	982974	982977	982980	982983	56	4. 1
4	9.982986	982989	982992	982995	982998	983001	983004	983007	983010	983013	983016	983019	55	1 = 1
5	9.983022	983025	983028	983031	983034	983037	983040	983043	983046	983049	983052	983055	54	2. 1
6	9.983058	983061	983064	983067	983070	983073	983076	983079	983082	983085	983088	983091	53	3. 1
7	9.983094	983097	983100	983103	983106	983109	983112	983115	983118	983121	983124	983127	52	4. 1
8	9.983130	983133	983136	983139	983142	983145	983148	983151	983154	983157	983160	983163	51	1 = 1
9	9.983166	983169	983172	983175	983178	983181	983184	983187	983190	983193	983196	983199	50	2. 1
10	9.983202	983205	983208	983211	983214	983217	983220	983223	983226	983229	983232	983235	49	3. 1
11	9.983238	983241	983244	983247	983250	983253	983256	983259	983262	983265	983268	983271	48	4. 1
12	9.983274	983277	983280	983283	983286	983289	983292	983295	983298	983301	983304	983307	47	1 = 1
13	9.983309	983312	983315	983318	983321	983324	983327	983330	983333	983336	983339	983342	46	2. 1
14	9.983345	983348	983351	983354	983357	983360	983363	983366	983369	983372	983375	983378	45	3. 1
15	9.983381	983384	983387	983390	983393	983396	983399	983402	983405	983408	983411	983414	44	4. 1
16	9.983416	983419	983422	983425	983428	983431	983434	983437	983440	983443	983446	983449	43	1 = 1
17	9.983452	983455	983458	983461	983464	983467	983470	983473	983476	983479	983482	983485	42	2. 1
18	9.983487	983490	983493	983496	983499	983502	983505	983508	983511	983514	983517	983520	41	3. 1
19	9.983523	983526	983529	983532	983535	983538	983541	983544	983547	983550	983553	983556	40	4. 1
20	9.983558	983561	983564	983567	983570	983573	983576	983579	983582	983585	983588	983591	39	1 = 1
21	9.983594	983597	983600	983603	983606	983609	983612	983615	983618	983621	983624	983627	38	2. 1
22	9.983629	983632	983635	983638	983641	983644	983647	983650	983653	983656	983659	983662	37	3. 1
23	9.983664	983667	983670	983673	983676	983679	983682	983685	983688	983691	983694	983697	36	4. 1
24	9.983700	983703	983706	983709	983712	983715	983718	983721	983724	983727	983730	983733	35	1 = 1
25	9.983735	983738	983741	983744	983747	983750	983753	983756	983759	983762	983765	983768	34	2. 1
26	9.983770	983773	983776	983779	983782	983785	983788	983791	983794	983797	983800	983803	33	3. 1
27	9.983805	983808	983811	983814	983817	983820	983823	983826	983829	983832	983835	983838	32	4. 1
28	9.983840	983843	983846	983849	983852	983855	983858	983861	983864	983867	983870	983873	31	1 = 1
29	9.983876	983879	983882	983885	983888	983891	983894	983897	983900	983903	983906	983909	30	2. 1
30	9.983911	983914	983917	983920	983923	983926	983929	983932	983935	983938	983941	983944	29	3. 1
31	9.983946	983949	983952	983955	983958	983961	983964	983967	983970	983973	983976	983979	28	4. 1
32	9.983981	983984	983987	983990	983993	983996	983999	984002	984005	984008	984011	984014	27	1 = 1
33	9.984015	984018	984021	984024	984027	984030	984033	984036	984039	984042	984045	984048	26	2. 1
34	9.984050	984053	984056	984059	984062	984065	984068	984071	984074	984077	984080	984083	25	3. 1
35	9.984085	984088	984091	984094	984097	984100	984103	984106	984109	984112	984115	984118	24	4. 1
36	9.984120	984123	984126	984129	984132	984135	984138	984141	984144	984147	984150	984153	23	1 = 1
37	9.984155	984158	984161	984164	984167	984170	984173	984176	984179	984182	984185	984188	22	2. 1
38	9.984190	984193	984196	984199	984202	984205	984208	984211	984214	984217	984220	984223	21	3. 1
39	9.984224	984227	984230	984233	984236	984239	984242	984245	984248	984251	984254	984257	20	4. 1
40	9.984259	984262	984265	984268	984271	984274	984277	984280	984283	984286	984289	984292	19	1 = 1
41	9.984294	984297	984300	984303	984306	984309	984312	984315	984318	984321	984324	984327	18	2. 1
42	9.984328	984331	984334	984337	984340	984343	984346	984349	984352	984355	984358	984361	17	3. 1
43	9.984363	984366	984369	984372	984375	984378	984381	984384	984387	984390	984393	984396	16	4. 1
44	9.984397	984400	984403	984406	984409	984412	984415	984418	984421	984424	984427	984430	15	1 = 1
45	9.984432	984435	984438	984441	984444	984447	984450	984453	984456	984459	984462	984465	14	2. 1
46	9.984466	984469	984472	984475	984478	984481	984484	984487	984490	984493	984496	984499	13	3. 1
47	9.984500	984503	984506	984509	984512	984515	984518	984521	984524	984527	984530	984533	12	4. 1
48	9.984535	984538	984541	984544	984547	984550	984553	984556	984559	984562	984565	984568	11	1 = 1
49	9.984569	984572	984575	984578	984581	984584	984587	984590	984593	984596	984599	984602	10	2. 1
50	9.984603	984606	984609	984612	984615	984618	984621	984624	984627	984630	984633	984636	9	3. 1
51	9.984638	984641	984644	984647	984650	984653	984656	984659	984662	984665	984668	984671	8	4. 1
52	9.984672	984675	984678	984681	984684	984687	984690	984693	984696	984699	984702	984705	7	1 = 1
53	9.984706	984709	984712	984715	984718	984721	984724	984727	984730	984733	984736	984739	6	2. 1
54	9.984740	984743	984746	984749	984752	984755	984758	984761	984764	984767	984770	984773	5	3. 1
55	9.984774	984777	984780	984783	984786	984789	984792	984795	984798	984801	984804	984807	4	4. 1
56	9.984808	984811	984814	984817	984820	984823	984826	984829	984832	984835	984838	984841	3	1 = 1
57	9.984842	984845	984848	984851	984854	984857	984860	984863	984866	984869	984872	984875	2	2. 1
58	9.984876	984879	984882	984885	984888	984891	984894	984897	984900	984903	984906	984909	1	3. 1
59	9.984910	984913	984916	984919	984922	984925	984928	984931	984934	984937	984940	984943	0	4. 1
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Propor- tion.
Co-sine of 15 degrees, or Sine of 105 degrees.														

LOGARITHMIC SINES.

Sine of 75 degrees, or Co-sine of 165 degrees.												Minutes	Proport. parts.
	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
944	984947	984949	984952	984955	984958	984961	984964	984966	984969	984972	984975	59	1" = 1
978	984980	984983	984986	984989	984992	984995	984997	985000	985003	985006	985009	58	2. 1
011	985014	985017	985020	985023	985026	985028	985031	985034	985037	985040	985042	57	3. 2
045	985048	985051	985054	985056	985059	985062	985065	985068	985070	985073	985076	56	4. 2
079	985082	985085	985087	985090	985093	985096	985099	985101	985104	985107	985110	55	1" = 1
113	985115	985118	985121	985124	985127	985129	985132	985135	985138	985141	985143	54	2. 1
146	985149	985152	985155	985157	985160	985163	985166	985169	985171	985174	985177	53	3. 2
180	985183	985185	985188	985191	985194	985197	985199	985202	985205	985208	985211	52	4. 2
213	985216	985219	985222	985225	985227	985230	985233	985236	985239	985241	985244	51	1" = 1
247	985250	985252	985255	985258	985261	985264	985266	985269	985272	985275	985278	50	2. 1
280	985283	985286	985289	985292	985294	985297	985300	985303	985305	985308	985311	49	3. 2
314	985317	985319	985322	985325	985328	985331	985333	985336	985339	985342	985344	48	4. 2
347	985350	985353	985356	985358	985361	985364	985367	985369	985372	985375	985378	47	1" = 1
381	985382	985386	985389	985392	985394	985397	985400	985403	985406	985408	985411	46	2. 1
414	985417	985419	985422	985425	985428	985430	985433	985436	985439	985442	985444	45	3. 2
447	985450	985453	985455	985458	985461	985464	985467	985469	985472	985475	985478	44	4. 2
480	985482	985486	985489	985491	985494	985497	985500	985503	985505	985508	985511	43	1" = 1
514	985516	985519	985522	985525	985527	985530	985533	985536	985538	985541	985544	42	2. 1
547	985550	985552	985555	985558	985561	985563	985566	985569	985572	985574	985577	41	3. 2
580	985582	985585	985588	985591	985594	985596	985599	985602	985605	985607	985610	40	4. 2
613	985616	985618	985621	985624	985627	985629	985632	985635	985638	985641	985643	39	1" = 1
646	985649	985652	985654	985657	985660	985663	985665	985668	985671	985674	985676	38	2. 1
679	985682	985685	985687	985690	985693	985696	985698	985701	985704	985706	985709	37	3. 2
712	985715	985717	985720	985723	985726	985728	985731	985734	985737	985739	985742	36	4. 2
745	985748	985750	985753	985756	985759	985761	985764	985767	985770	985772	985775	35	1" = 1
778	985781	985783	985786	985789	985791	985794	985797	985800	985802	985805	985808	34	2. 1
811	985813	985816	985819	985822	985824	985827	985830	985833	985835	985838	985841	33	3. 2
843	985846	985849	985852	985854	985857	985860	985863	985865	985868	985871	985873	32	4. 2
876	985879	985882	985884	985887	985890	985893	985895	985898	985901	985903	985906	31	1" = 1
909	985912	985914	985917	985920	985923	985925	985928	985931	985933	985936	985939	30	2. 1
942	985944	985947	985950	985953	985955	985958	985961	985963	985966	985969	985972	29	3. 2
974	985977	985980	985982	985985	985988	985991	985993	985996	985999	986001	986004	28	4. 2
107	986010	986012	986015	986018	986020	986023	986026	986029	986031	986034	986037	27	1" = 1
139	986042	986045	986048	986050	986053	986056	986058	986061	986064	986066	986069	26	2. 1
172	986075	986077	986080	986083	986086	986088	986091	986094	986096	986099	986102	25	3. 2
205	986107	986110	986113	986115	986118	986121	986123	986126	986129	986132	986134	24	4. 2
237	986140	986142	986145	986148	986150	986153	986156	986159	986161	986164	986167	23	1" = 1
269	986172	986175	986177	986180	986183	986186	986188	986191	986194	986196	986199	22	2. 1
302	986204	986207	986210	986213	986215	986218	986221	986223	986226	986229	986231	21	3. 2
334	986237	986239	986242	986245	986248	986250	986253	986256	986258	986261	986264	20	4. 2
366	986269	986272	986274	986277	986280	986283	986285	986288	986291	986293	986296	19	1" = 1
399	986301	986304	986307	986309	986312	986315	986317	986320	986323	986326	986328	18	2. 1
431	986334	986336	986339	986342	986344	986347	986350	986352	986355	986358	986360	17	3. 2
463	986366	986368	986371	986374	986376	986379	986382	986384	986387	986390	986393	16	4. 2
495	986398	986401	986403	986406	986409	986411	986414	986417	986419	986422	986425	15	1" = 1
527	986430	986433	986435	986438	986441	986443	986446	986449	986451	986454	986457	14	2. 1
559	986462	986465	986467	986470	986473	986475	986478	986481	986483	986486	986489	13	3. 2
591	986494	986497	986499	986502	986505	986507	986510	986513	986515	986518	986521	12	4. 2
623	986526	986529	986531	986534	986537	986539	986542	986545	986547	986550	986553	11	1" = 1
655	986558	986561	986563	986566	986569	986571	986574	986577	986579	986582	986585	10	2. 1
687	986590	986593	986595	986598	986601	986603	986606	986608	986611	986614	986616	9	3. 2
719	986622	986624	986627	986630	986632	986635	986638	986640	986643	986646	986648	8	4. 2
751	986654	986656	986659	986662	986664	986667	986669	986672	986675	986677	986680	7	1" = 1
783	986685	986688	986691	986693	986696	986699	986701	986704	986707	986709	986712	6	2. 1
814	986717	986720	986722	986725	986728	986730	986733	986736	986738	986741	986744	5	3. 2
846	986749	986751	986754	986757	986759	986762	986765	986767	986770	986773	986775	4	4. 2
878	986781	986783	986786	986788	986791	986794	986796	986799	986802	986804	986807	3	1" = 1
909	986812	986815	986817	986820	986823	986825	986828	986831	986833	986836	986838	2	2. 1
941	986844	986846	986849	986852	986854	986857	986860	986862	986865	986867	986870	1	3. 2
973	986875	986878	986881	986883	986886	986888	986891	986894	986896	986899	986902	0	4. 2
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.	
Co-sine of 14 degrees, or Sine of 104 degrees.												Minutes	Proport. parts.

LOGARITHMIC SINES.

Sine of 76 degrees, or Co-sine of 166 degrees.													
Minutes	0°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes
0	9.986904	986907	986909	986912	986915	986917	986920	986923	986925	986928	986930	986933	59
1	9.986936	986938	986941	986944	986946	986949	986951	986954	986957	986959	986962	986964	58
2	9.986967	986970	986972	986975	986978	986980	986983	986985	986988	986991	986993	986996	57
3	9.986998	987001	987004	987006	987009	987012	987014	987017	987019	987022	987025	987027	56
4	9.987030	987032	987035	987038	987040	987043	987046	987048	987051	987053	987056	987059	55
5	9.987061	987064	987066	987069	987072	987074	987077	987079	987082	987085	987087	987090	54
6	9.987092	987095	987098	987100	987103	987105	987108	987111	987113	987116	987118	987121	53
7	9.987124	987126	987129	987132	987134	987137	987139	987142	987145	987147	987150	987152	52
8	9.987155	987158	987160	987163	987165	987168	987170	987173	987176	987178	987181	987183	51
9	9.987186	987189	987191	987194	987196	987199	987202	987204	987207	987209	987212	987215	50
10	9.987217	987220	987222	987225	987228	987230	987233	987235	987238	987241	987243	987246	49
11	9.987248	987251	987253	987256	987259	987261	987264	987266	987269	987272	987274	987277	48
12	9.987279	987282	987285	987287	987290	987292	987295	987297	987300	987303	987305	987308	47
13	9.987310	987313	987316	987318	987321	987323	987326	987328	987331	987334	987336	987339	46
14	9.987341	987344	987346	987349	987352	987354	987357	987359	987362	987365	987367	987370	45
15	9.987372	987375	987377	987380	987383	987385	987388	987390	987393	987395	987398	987401	44
16	9.987403	987406	987408	987411	987413	987416	987419	987421	987424	987426	987429	987431	43
17	9.987434	987437	987439	987442	987444	987447	987449	987452	987455	987457	987460	987462	42
18	9.987465	987467	987470	987473	987475	987478	987480	987483	987485	987488	987490	987493	41
19	9.987496	987498	987501	987503	987506	987508	987511	987514	987516	987519	987521	987524	40
20	9.987526	987529	987531	987534	987537	987539	987542	987544	987547	987549	987552	987554	39
21	9.987557	987560	987562	987565	987567	987570	987572	987575	987577	987580	987583	987585	38
22	9.987588	987590	987593	987595	987598	987600	987603	987606	987608	987611	987613	987616	37
23	9.987618	987621	987623	987626	987629	987631	987634	987636	987639	987641	987644	987646	36
24	9.987649	987651	987654	987657	987659	987662	987664	987667	987669	987672	987674	987677	35
25	9.987679	987682	987685	987687	987690	987692	987695	987697	987700	987702	987705	987707	34
26	9.987710	987712	987715	987718	987720	987723	987725	987728	987730	987733	987735	987738	33
27	9.987740	987743	987745	987748	987751	987753	987756	987758	987761	987763	987766	987768	32
28	9.987771	987773	987776	987778	987781	987783	987786	987789	987791	987794	987796	987799	31
29	9.987801	987804	987806	987809	987811	987814	987816	987819	987821	987824	987827	987829	30
30	9.987832	987834	987837	987839	987842	987844	987847	987849	987852	987854	987857	987859	29
31	9.987862	987864	987867	987869	987872	987874	987877	987880	987882	987885	987887	987890	28
32	9.987892	987895	987897	987900	987902	987905	987907	987910	987912	987915	987917	987920	27
33	9.987922	987925	987927	987930	987932	987935	987937	987940	987942	987945	987948	987950	26
34	9.987953	987955	987958	987960	987963	987965	987968	987970	987973	987975	987978	987980	25
35	9.987983	987985	987988	987990	987993	987995	987998	988000	988003	988005	988008	988010	24
36	9.988013	988015	988018	988020	988023	988025	988028	988030	988033	988035	988038	988040	23
37	9.988043	988045	988048	988050	988053	988055	988058	988060	988063	988065	988068	988070	22
38	9.988073	988075	988078	988080	988083	988085	988088	988090	988093	988095	988098	988100	21
39	9.988103	988105	988108	988110	988113	988115	988118	988120	988123	988125	988128	988130	20
40	9.988133	988135	988138	988140	988143	988145	988148	988150	988153	988155	988158	988160	19
41	9.988163	988165	988168	988170	988173	988175	988178	988180	988183	988185	988188	988190	18
42	9.988193	988195	988198	988200	988203	988205	988208	988210	988213	988215	988218	988220	17
43	9.988223	988225	988227	988230	988232	988235	988237	988240	988242	988245	988247	988250	16
44	9.988252	988255	988257	988260	988262	988265	988267	988270	988272	988275	988277	988280	15
45	9.988282	988285	988287	988290	988292	988295	988297	988299	988302	988304	988307	988309	14
46	9.988312	988314	988317	988319	988322	988324	988327	988329	988332	988334	988337	988339	13
47	9.988342	988344	988346	988349	988351	988354	988356	988359	988361	988364	988366	988369	12
48	9.988371	988374	988376	988379	988381	988384	988386	988388	988391	988393	988396	988398	11
49	9.988401	988403	988406	988408	988411	988413	988416	988418	988421	988423	988425	988428	10
50	9.988430	988433	988435	988438	988440	988443	988445	988448	988450	988453	988455	988457	9
51	9.988460	988462	988465	988467	988470	988472	988475	988477	988480	988482	988484	988487	8
52	9.988489	988492	988494	988497	988499	988502	988504	988507	988509	988512	988514	988516	7
53	9.988510	988512	988515	988517	988520	988522	988525	988527	988530	988532	988535	988537	6
54	9.988548	988551	988553	988556	988558	988561	988563	988565	988568	988570	988573	988575	5
55	9.988578	988580	988583	988585	988587	988590	988592	988595	988597	988600	988602	988605	4
56	9.988607	988609	988612	988614	988617	988619	988622	988624	988627	988629	988631	988634	3
57	9.988636	988639	988641	988644	988646	988649	988651	988653	988656	988658	988661	988663	2
58	9.988666	988668	988670	988673	988675	988678	988680	988683	988685	988687	988690	988692	1
59	9.988695	988697	988700	988702	988705	988707	988709	988712	988714	988717	988719	988722	0
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'													
Co-sine of 13 degrees, or Sine of 103 degrees.													
Minutes													Minutes
0													0
1													1
2													2
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59													59

LOGARITHMIC SINES.

Sine of 77 degrees, or Co-sine of 167 degrees.												Minutes	Proport. parts.
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
724	988726	988729	988731	988734	988736	988739	988741	988743	988746	988748	988751	59	1" = 0
753	988756	988758	988760	988763	988765	988768	988770	988773	988775	988777	988780	58	2. 1
782	988785	988787	988790	988792	988794	988797	988799	988802	988804	988806	988809	57	3. 1
811	988814	988816	988819	988821	988823	988826	988828	988831	988833	988836	988838	56	4. 2
840	988843	988845	988848	988850	988852	988855	988857	988860	988862	988864	988867	55	1" = 0
869	988872	988874	988877	988879	988881	988884	988886	988889	988891	988893	988896	54	2. 1
898	988901	988903	988906	988908	988910	988913	988915	988918	988920	988922	988925	53	3. 1
927	988930	988932	988934	988937	988939	988942	988944	988946	988949	988951	988954	52	4. 2
956	988958	988961	988963	988966	988968	988970	988973	988975	988978	988980	988983	51	1" = 0
985	988987	988990	988992	988995	988997	988999	990002	990004	990007	990009	990011	50	2. 1
014	989016	989019	989021	989023	989026	989028	989030	989033	989035	989038	989041	49	3. 1
042	989045	989047	989050	989052	989054	989057	989059	989062	989064	989066	989069	48	4. 2
071	989074	989076	989078	989081	989083	989086	989088	989090	989093	989095	989097	47	1" = 0
100	989102	989105	989107	989109	989112	989114	989117	989119	989121	989124	989126	46	2. 1
129	989131	989133	989136	989138	989140	989143	989145	989148	989150	989152	989155	45	3. 1
157	989160	989162	989164	989167	989169	989171	989174	989176	989179	989181	989183	44	4. 2
186	989188	989190	989193	989195	989198	989200	989202	989205	989207	989209	989212	43	1" = 0
214	989217	989219	989221	989224	989226	989228	989231	989233	989236	989238	989240	42	2. 1
243	989245	989247	989250	989252	989255	989257	989259	989262	989264	989266	989269	41	3. 1
271	989274	989276	989278	989281	989283	989285	989288	989290	989292	989295	989297	40	4. 2
300	989302	989304	989307	989309	989311	989314	989316	989318	989321	989323	989326	39	1" = 0
328	989330	989333	989335	989337	989340	989342	989344	989347	989349	989352	989354	38	2. 1
356	989359	989361	989363	989366	989368	989370	989373	989375	989377	989380	989382	37	3. 1
385	989387	989389	989392	989394	989396	989399	989401	989403	989406	989408	989410	36	4. 2
413	989415	989418	989420	989422	989425	989427	989429	989432	989434	989436	989439	35	1" = 0
441	989443	989446	989448	989450	989453	989455	989457	989460	989462	989465	989467	34	2. 1
469	989472	989474	989476	989479	989481	989483	989486	989488	989490	989493	989495	33	3. 1
497	989500	989502	989504	989507	989509	989511	989514	989516	989518	989521	989523	32	4. 2
525	989528	989530	989532	989535	989537	989540	989542	989544	989547	989549	989551	31	1" = 0
554	989556	989558	989561	989563	989565	989568	989570	989572	989575	989577	989579	30	2. 1
582	989584	989586	989589	989591	989593	989596	989598	989600	989603	989605	989607	29	3. 1
610	989612	989614	989617	989619	989621	989624	989626	989628	989631	989633	989635	28	4. 2
637	989640	989642	989644	989647	989649	989651	989654	989656	989658	989661	989663	27	1" = 0
665	989668	989670	989672	989675	989677	989679	989682	989684	989686	989689	989691	26	2. 1
693	989696	989698	989700	989703	989705	989707	989710	989712	989714	989716	989719	25	3. 1
721	989723	989726	989728	989730	989733	989735	989737	989740	989742	989744	989747	24	4. 2
749	989755	989757	989759	989762	989764	989766	989769	989771	989773	989775	989777	23	1" = 0
777	989779	989781	989784	989786	989788	989791	989793	989795	989797	989799	989802	22	2. 1
804	989807	989809	989811	989814	989816	989818	989821	989823	989825	989827	989830	21	3. 1
832	989834	989837	989839	989841	989844	989846	989848	989850	989853	989855	989857	20	4. 2
860	989862	989864	989867	989869	989871	989874	989876	989878	989880	989883	989885	19	1" = 0
887	989890	989892	989894	989897	989899	989902	989904	989906	989908	989910	989913	18	2. 1
915	989917	989919	989922	989924	989926	989929	989931	989933	989936	989938	989940	17	3. 1
942	989945	989947	989949	989952	989954	989956	989958	989961	989963	989965	989968	16	4. 2
970	989972	989974	989977	989979	989981	989984	989986	989988	989990	989993	989995	15	1" = 0
997	990000	990002	990004	990006	990009	990011	990013	990016	990018	990020	990022	14	2. 1
125	990027	990029	990032	990034	990036	990038	990041	990043	990045	990048	990050	13	3. 1
152	990054	990057	990059	990061	990064	990066	990068	990070	990073	990075	990077	12	4. 2
179	990082	990084	990086	990089	990091	990093	990095	990098	990100	990102	990104	11	1" = 0
207	990109	990111	990114	990116	990118	990120	990123	990125	990127	990129	990132	10	2. 1
234	990136	990139	990141	990143	990145	990148	990150	990152	990154	990157	990159	9	3. 1
261	990166	990168	990170	990173	990175	990177	990179	990182	990184	990186		8	4. 2
288	990191	990193	990195	990197	990200	990202	990204	990206	990209	990211	990213	7	1" = 0
316	990218	990220	990222	990225	990227	990229	990231	990234	990236	990238	990240	6	2. 1
343	990245	990247	990249	990252	990254	990256	990258	990261	990263	990265	990267	5	3. 1
370	990272	990274	990276	990279	990281	990283	990285	990288	990290	990292	990294	4	4. 2
397	990299	990301	990303	990306	990308	990310	990312	990315	990317	990319	990321	3	1" = 0
424	990328	990330	990332	990335	990337	990339	990342	990344	990346	990348		2	2. 1
451	990353	990355	990357	990360	990362	990364	990366	990369	990371	990373	990375	1	3. 1
478	990380	990382	990384	990387	990389	990391	990393	990395	990398	990400	990402	0	4. 2
	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-sine of 12 degrees, or -Sine of 102 degrees.													

LOGARITHMIC SINES.

Sine of 78 degrees, or Co-sine of 168 degrees.													
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes
0	9.990404	990407	990409	990411	990413	990416	990418	990420	990422	990425	990427	990429	59
1	9.990431	990434	990436	990438	990440	990442	990445	990447	990449	990451	990454	990456	58
2	9.990458	990460	990463	990465	990467	990469	990471	990474	990476	990478	990480	990483	57
3	9.990485	990487	990489	990492	990494	990496	990498	990500	990503	990505	990507	990509	56
4	9.990512	990514	990516	990518	990520	990523	990525	990527	990529	990532	990534	990536	55
5	9.990538	990540	990543	990545	990547	990549	990552	990554	990556	990558	990560	990563	54
6	9.990565	990567	990569	990572	990574	990576	990578	990580	990583	990585	990587	990589	53
7	9.990591	990594	990596	990598	990600	990603	990605	990607	990609	990611	990614	990616	52
8	9.990618	990620	990622	990625	990627	990629	990631	990634	990636	990638	990640	990642	51
9	9.990645	990647	990649	990651	990653	990656	990658	990660	990662	990664	990667	990669	50
10	9.990671	990673	990675	990678	990680	990682	990684	990686	990689	990691	990693	990695	49
11	9.990697	990700	990702	990704	990706	990709	990711	990713	990715	990717	990720	990722	48
12	9.990724	990726	990728	990731	990733	990735	990737	990739	990741	990744	990746	990748	47
13	9.990750	990752	990755	990757	990759	990761	990763	990766	990768	990770	990772	990774	46
14	9.990777	990779	990781	990783	990785	990788	990790	990792	990794	990796	990799	990801	45
15	9.990803	990805	990807	990809	990812	990814	990816	990818	990820	990823	990825	990827	44
16	9.990829	990831	990834	990836	990838	990840	990842	990844	990847	990849	990851	990853	43
17	9.990855	990858	990860	990862	990864	990866	990868	990871	990873	990875	990877	990879	42
18	9.990882	990884	990886	990888	990890	990892	990895	990897	990899	990901	990903	990906	41
19	9.990908	990910	990912	990914	990916	990919	990921	990923	990925	990927	990929	990932	40
20	9.990934	990936	990938	990940	990943	990945	990947	990949	990951	990953	990956	990958	39
21	9.990960	990962	990964	990966	990969	990971	990973	990975	990977	990979	990982	990984	38
22	9.990986	990988	990990	990992	990995	990997	990999	991001	991003	991005	991008	991010	37
23	9.991012	991014	991016	991018	991021	991023	991025	991027	991029	991031	991034	991036	36
24	9.991038	991040	991042	991044	991046	991049	991051	991053	991055	991057	991059	991062	35
25	9.991064	991066	991068	991070	991072	991075	991077	991079	991081	991083	991085	991087	34
26	9.991090	991092	991094	991096	991098	991100	991103	991105	991107	991109	991111	991113	33
27	9.991115	991118	991120	991122	991124	991126	991128	991131	991133	991135	991137	991139	32
28	9.991141	991143	991146	991148	991150	991152	991154	991156	991158	991161	991163	991165	31
29	9.991167	991169	991171	991173	991176	991178	991180	991182	991184	991186	991188	991191	30
30	9.991193	991195	991197	991199	991201	991203	991206	991208	991210	991212	991214	991216	29
31	9.991218	991221	991223	991225	991227	991229	991231	991233	991236	991238	991240	991242	28
32	9.991244	991246	991248	991250	991253	991255	991257	991259	991261	991263	991265	991268	27
33	9.991270	991272	991274	991276	991278	991280	991282	991285	991287	991289	991291	991293	26
34	9.991295	991297	991300	991302	991304	991306	991308	991310	991312	991314	991317	991319	25
35	9.991321	991323	991325	991327	991329	991331	991334	991336	991338	991340	991342	991344	24
36	9.991346	991348	991351	991353	991355	991357	991359	991361	991363	991365	991367	991370	23
37	9.991372	991374	991376	991378	991380	991382	991384	991387	991389	991391	991393	991395	22
38	9.991397	991399	991401	991403	991406	991408	991410	991412	991414	991416	991418	991420	21
39	9.991423	991425	991427	991429	991431	991433	991435	991437	991439	991442	991444	991446	20
40	9.991448	991450	991452	991454	991456	991458	991461	991463	991465	991467	991469	991471	19
41	9.991473	991475	991477	991479	991482	991484	991486	991488	991490	991492	991494	991496	18
42	9.991498	991501	991503	991505	991507	991509	991511	991513	991515	991517	991519	991522	17
43	9.991524	991526	991528	991530	991532	991534	991536	991538	991540	991543	991545	991547	16
44	9.991549	991551	991553	991555	991557	991559	991561	991564	991566	991568	991570	991572	15
45	9.991574	991576	991578	991580	991582	991584	991587	991589	991591	991593	991595	991597	14
46	9.991599	991601	991603	991605	991607	991610	991612	991614	991616	991618	991620	991622	13
47	9.991624	991626	991628	991630	991633	991635	991637	991639	991641	991643	991645	991647	12
48	9.991649	991651	991653	991655	991658	991660	991662	991664	991666	991668	991670	991672	11
49	9.991674	991676	991678	991680	991683	991685	991687	991689	991691	991693	991695	991697	10
50	9.991699	991701	991703	991705	991707	991710	991712	991714	991716	991718	991720	991722	9
51	9.991724	991726	991728	991730	991732	991734	991737	991739	991741	991743	991745	991747	8
52	9.991749	991751	991753	991755	991757	991759	991761	991763	991766	991768	991770	991772	7
53	9.991774	991776	991778	991780	991782	991784	991786	991788	991790	991792	991794	991797	6
54	9.991799	991801	991803	991805	991807	991809	991811	991813	991815	991817	991819	991821	5
55	9.991823	991825	991827	991830	991832	991834	991836	991838	991840	991842	991844	991846	4
56	9.991848	991850	991852	991854	991856	991858	991860	991863	991865	991867	991869	991871	3
57	9.991873	991875	991877	991879	991881	991883	991885	991887	991889	991891	991893	991895	2
58	9.991897	991899	991902	991904	991906	991908	991910	991912	991914	991916	991918	991920	1
59	9.991922	991924	991926	991928	991930	991932	991934	991936	991938	991940	991943	991945	0
Co-sine of 11 degrees, or Sine of 101 degrees.													
Minutes	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes

LOGARITHMIC SINES.

Minutes	Sine of 80 degrees, or Co-sine of 170 degrees.						Minutes	Proper parts.
	0'	10'	20'	30'	40'	50'		
0	9.993351	9.993355	9.993359	9.993363	9.993366	9.993370	59	1 =
1	9.993374	9.993377	9.993381	9.993385	9.993389	9.993392	58	2.
2	9.993396	9.993400	9.993403	9.993407	9.993411	9.993414	57	3.
3	9.993418	9.993422	9.993426	9.993429	9.993433	9.993437	56	4.
4	9.993440	9.993444	9.993448	9.993451	9.993455	9.993459	55	5.
5	9.993462	9.993466	9.993470	9.993473	9.993477	9.993481	54	6.
6	9.993484	9.993488	9.993492	9.993496	9.993499	9.993503	53	7.
7	9.993506	9.993510	9.993514	9.993518	9.993521	9.993525	52	8.
8	9.993528	9.993532	9.993536	9.993539	9.993543	9.993547	51	9.
9	9.993550	9.993554	9.993558	9.993561	9.993565	9.993569	50	1 =
10	9.993572	9.993576	9.993580	9.993583	9.993587	9.993591	49	2.
11	9.993594	9.993598	9.993602	9.993605	9.993609	9.993612	48	3.
12	9.993616	9.993620	9.993623	9.993627	9.993631	9.993634	47	4.
13	9.993638	9.993641	9.993645	9.993649	9.993652	9.993656	46	5.
14	9.993660	9.993663	9.993667	9.993670	9.993674	9.993678	45	6.
15	9.993681	9.993685	9.993689	9.993692	9.993696	9.993699	44	7.
16	9.993703	9.993707	9.993710	9.993714	9.993718	9.993721	43	8.
17	9.993725	9.993728	9.993732	9.993736	9.993739	9.993743	42	9.
18	9.993746	9.993750	9.993754	9.993757	9.993761	9.993764	41	1 =
19	9.993768	9.993772	9.993775	9.993779	9.993782	9.993786	40	2.
20	9.993789	9.993793	9.993797	9.993800	9.993804	9.993807	39	3.
21	9.993811	9.993815	9.993818	9.993822	9.993825	9.993829	38	4.
22	9.993832	9.993836	9.993840	9.993843	9.993847	9.993850	37	5.
23	9.993854	9.993857	9.993861	9.993865	9.993868	9.993872	36	6.
24	9.993875	9.993879	9.993882	9.993886	9.993889	9.993893	35	7.
25	9.993897	9.993900	9.993904	9.993907	9.993911	9.993914	34	8.
26	9.993918	9.993921	9.993925	9.993929	9.993932	9.993936	33	9.
27	9.993939	9.993943	9.993946	9.993950	9.993953	9.993957	32	1 =
28	9.993960	9.993964	9.993967	9.993971	9.993975	9.993978	31	2.
29	9.993982	9.993985	9.993989	9.993992	9.993996	9.993999	30	3.
30	9.994003	9.994006	9.994010	9.994013	9.994017	9.994020	29	4.
31	9.994024	9.994027	9.994031	9.994034	9.994038	9.994041	28	5.
32	9.994045	9.994048	9.994052	9.994055	9.994059	9.994062	27	6.
33	9.994066	9.994069	9.994073	9.994076	9.994080	9.994083	26	7.
34	9.994087	9.994090	9.994094	9.994097	9.994101	9.994104	25	8.
35	9.994108	9.994111	9.994115	9.994118	9.994122	9.994125	24	9.
36	9.994129	9.994132	9.994136	9.994139	9.994143	9.994146	23	1 =
37	9.994150	9.994153	9.994157	9.994160	9.994164	9.994167	22	2.
38	9.994171	9.994174	9.994178	9.994181	9.994185	9.994188	21	3.
39	9.994191	9.994195	9.994198	9.994202	9.994205	9.994209	20	4.
40	9.994212	9.994216	9.994219	9.994223	9.994226	9.994230	19	5.
41	9.994233	9.994236	9.994240	9.994243	9.994247	9.994250	18	6.
42	9.994254	9.994257	9.994261	9.994264	9.994267	9.994271	17	7.
43	9.994274	9.994278	9.994281	9.994285	9.994288	9.994292	16	8.
44	9.994295	9.994298	9.994302	9.994305	9.994309	9.994312	15	9.
45	9.994316	9.994319	9.994322	9.994326	9.994329	9.994333	14	1 =
46	9.994336	9.994340	9.994343	9.994346	9.994350	9.994353	13	2.
47	9.994357	9.994360	9.994364	9.994367	9.994370	9.994374	12	3.
48	9.994377	9.994381	9.994384	9.994387	9.994391	9.994394	11	4.
49	9.994398	9.994401	9.994404	9.994408	9.994411	9.994415	10	5.
50	9.994418	9.994421	9.994425	9.994428	9.994432	9.994435	9	6.
51	9.994438	9.994442	9.994445	9.994449	9.994452	9.994455	8	7.
52	9.994459	9.994462	9.994466	9.994469	9.994472	9.994476	7	8.
53	9.994479	9.994482	9.994486	9.994489	9.994492	9.994496	6	9.
54	9.994499	9.994503	9.994506	9.994509	9.994513	9.994516	5	1 =
55	9.994519	9.994523	9.994526	9.994530	9.994533	9.994536	4	2.
56	9.994540	9.994543	9.994546	9.994550	9.994553	9.994556	3	3.
57	9.994560	9.994563	9.994566	9.994570	9.994573	9.994577	2	4.
58	9.994580	9.994583	9.994586	9.994590	9.994593	9.994597	1	5.
59	9.994600	9.994603	9.994607	9.994610	9.994613	9.994617	0	6.
Minutes	60'	50'	40'	30'	20'	10'	Minutes	Proper parts.
Co-sine of 9 degrees, or Sine of 99 degrees.								

LOGARITHMIC SINES.

Sine of 81 degrees, or Co-sine of 171 degrees.						Minutes	Proport. parts.
0°	10°	20°	30°	40°	50°		
9.994620	9.994623	9.994627	9.994630	9.994633	9.994637	59	
9.994640	9.994643	9.994647	9.994650	9.994653	9.994657	58	1" = 0
9.994660	9.994663	9.994667	9.994670	9.994673	9.994677	57	2. 1
9.994680	9.994683	9.994686	9.994690	9.994693	9.994696	56	3. 1
9.994700	9.994703	9.994706	9.994710	9.994713	9.994716	55	4. 1
9.994720	9.994723	9.994726	9.994729	9.994733	9.994736	54	5. 2
9.994739	9.994743	9.994746	9.994749	9.994753	9.994756	53	6. 2
9.994759	9.994762	9.994766	9.994769	9.994772	9.994776	52	7. 2
9.994779	9.994782	9.994785	9.994789	9.994792	9.994795	51	8. 3
9.994798	9.994802	9.994805	9.994808	9.994812	9.994815	50	9. 3
9.994818	9.994821	9.994825	9.994828	9.994831	9.994834	49	
9.994838	9.994841	9.994844	9.994848	9.994851	9.994854	48	1 = 0
9.994857	9.994861	9.994864	9.994867	9.994870	9.994874	47	2. 1
9.994877	9.994880	9.994883	9.994887	9.994890	9.994893	46	3. 1
9.994896	9.994900	9.994903	9.994906	9.994909	9.994913	45	4. 1
9.994916	9.994919	9.994922	9.994926	9.994929	9.994932	44	5. 2
9.994935	9.994939	9.994942	9.994945	9.994948	9.994951	43	6. 2
9.994955	9.994958	9.994961	9.994964	9.994968	9.994971	42	7. 2
9.994974	9.994977	9.994980	9.994983	9.994987	9.994990	41	8. 3
9.994993	9.994997	9.995000	9.995003	9.995006	9.995009	40	9. 3
9.995013	9.995016	9.995019	9.995022	9.995025	9.995029	39	
9.995032	9.995035	9.995038	9.995041	9.995045	9.995048	38	1 = 0
9.995051	9.995054	9.995057	9.995061	9.995064	9.995067	37	2. 1
9.995070	9.995073	9.995077	9.995080	9.995083	9.995086	36	3. 1
9.995089	9.995093	9.995096	9.995099	9.995102	9.995105	35	4. 1
9.995108	9.995112	9.995115	9.995118	9.995121	9.995124	34	5. 2
9.995127	9.995131	9.995134	9.995137	9.995140	9.995143	33	6. 2
9.995146	9.995150	9.995153	9.995156	9.995159	9.995162	32	7. 2
9.995165	9.995169	9.995172	9.995175	9.995178	9.995181	31	8. 3
9.995184	9.995188	9.995191	9.995194	9.995197	9.995200	30	9. 3
9.995203	9.995206	9.995210	9.995213	9.995216	9.995219	29	
9.995222	9.995225	9.995228	9.995232	9.995235	9.995238	28	1 = 0
9.995241	9.995244	9.995247	9.995250	9.995254	9.995257	27	2. 1
9.995260	9.995263	9.995266	9.995269	9.995272	9.995275	26	3. 1
9.995278	9.995282	9.995285	9.995288	9.995291	9.995294	25	4. 1
9.995297	9.995300	9.995303	9.995307	9.995310	9.995313	24	5. 2
9.995316	9.995319	9.995322	9.995325	9.995328	9.995331	23	6. 2
9.995334	9.995338	9.995341	9.995344	9.995347	9.995350	22	7. 2
9.995353	9.995356	9.995359	9.995362	9.995366	9.995369	21	8. 3
9.995372	9.995375	9.995378	9.995381	9.995384	9.995387	20	9. 3
9.995390	9.995393	9.995396	9.995399	9.995403	9.995406	19	
9.995409	9.995412	9.995415	9.995418	9.995421	9.995424	18	1 = 0
9.995427	9.995430	9.995433	9.995436	9.995439	9.995443	17	2. 1
9.995446	9.995449	9.995452	9.995455	9.995458	9.995461	16	3. 1
9.995464	9.995467	9.995470	9.995473	9.995476	9.995479	15	4. 1
9.995482	9.995485	9.995488	9.995491	9.995494	9.995497	14	5. 2
9.995501	9.995504	9.995507	9.995510	9.995513	9.995516	13	6. 2
9.995519	9.995522	9.995525	9.995528	9.995531	9.995534	12	7. 2
9.995537	9.995540	9.995543	9.995546	9.995549	9.995552	11	8. 2
9.995555	9.995558	9.995561	9.995564	9.995567	9.995570	10	9. 3
9.995573	9.995576	9.995579	9.995582	9.995585	9.995588	9	
9.995591	9.995594	9.995597	9.995600	9.995604	9.995607	8	1 = 0
9.995610	9.995613	9.995616	9.995619	9.995622	9.995625	7	2. 1
9.995628	9.995631	9.995634	9.995637	9.995640	9.995643	6	3. 1
9.995646	9.995649	9.995652	9.995655	9.995658	9.995661	5	4. 1
9.995664	9.995667	9.995670	9.995672	9.995675	9.995678	4	5. 2
9.995681	9.995684	9.995687	9.995690	9.995693	9.995696	3	6. 2
9.995699	9.995702	9.995705	9.995708	9.995711	9.995714	2	7. 2
9.995717	9.995720	9.995723	9.995726	9.995729	9.995732	1	8. 2
9.995735	9.995738	9.995741	9.995744	9.995747	9.995750	0	9. 3
60°	50°	40°	30°	20°	10°	Minutes	Proport. parts.
Co-sine of 8 degrees, or Sine of 98 degrees.							

LOGARITHMIC SINES.

Minutes	Sine of 82 degrees, or Co-sine of 172 degrees.						Minutes	Proport.
	0'	10'	20'	30'	40'	50'		
0	9.995753	9.995756	9.995759	9.995762	9.995765	9.995768	59	
1	9.995771	9.995773	9.995776	9.995779	9.995782	9.995785	58	1" =
2	9.995788	9.995791	9.995794	9.995797	9.995800	9.995803	57	2.
3	9.995806	9.995809	9.995812	9.995815	9.995818	9.995821	56	3.
4	9.995823	9.995826	9.995829	9.995832	9.995835	9.995838	55	4.
5	9.995841	9.995844	9.995847	9.995850	9.995853	9.995856	54	5.
6	9.995859	9.995862	9.995864	9.995867	9.995870	9.995873	53	6.
7	9.995876	9.995879	9.995882	9.995885	9.995888	9.995891	52	7.
8	9.995894	9.995897	9.995899	9.995902	9.995905	9.995908	51	8.
9	9.995911	9.995914	9.995917	9.995920	9.995923	9.995926	50	9.
10	9.995928	9.995931	9.995934	9.995937	9.995940	9.995943	49	
11	9.995946	9.995949	9.995952	9.995954	9.995957	9.995960	48	1
12	9.995963	9.995966	9.995969	9.995972	9.995975	9.995978	47	2.
13	9.995980	9.995983	9.995986	9.995989	9.995992	9.995995	46	3.
14	9.995998	9.996001	9.996003	9.996006	9.996009	9.996012	45	4.
15	9.996015	9.996018	9.996021	9.996024	9.996026	9.996029	44	5.
16	9.996032	9.996035	9.996038	9.996041	9.996044	9.996046	43	6.
17	9.996049	9.996052	9.996055	9.996058	9.996061	9.996063	42	7.
18	9.996066	9.996069	9.996072	9.996075	9.996078	9.996081	41	8.
19	9.996083	9.996086	9.996089	9.996092	9.996095	9.996098	40	9.
20	9.996100	9.996103	9.996106	9.996109	9.996112	9.996115	39	
21	9.996117	9.996120	9.996123	9.996126	9.996129	9.996131	38	1
22	9.996134	9.996137	9.996140	9.996143	9.996146	9.996148	37	2.
23	9.996151	9.996154	9.996157	9.996160	9.996163	9.996165	36	3.
24	9.996168	9.996171	9.996174	9.996177	9.996179	9.996182	35	4.
25	9.996185	9.996188	9.996190	9.996193	9.996196	9.996199	34	5.
26	9.996202	9.996204	9.996207	9.996210	9.996213	9.996216	33	6.
27	9.996219	9.996221	9.996224	9.996227	9.996230	9.996232	32	7.
28	9.996235	9.996238	9.996241	9.996244	9.996246	9.996249	31	8.
29	9.996252	9.996255	9.996257	9.996260	9.996263	9.996266	30	9.
30	9.996269	9.996271	9.996274	9.996277	9.996280	9.996282	29	
31	9.996285	9.996288	9.996291	9.996293	9.996296	9.996299	28	1
32	9.996302	9.996305	9.996307	9.996310	9.996313	9.996316	27	2.
33	9.996318	9.996321	9.996324	9.996327	9.996329	9.996332	26	3.
34	9.996335	9.996338	9.996340	9.996343	9.996346	9.996349	25	4.
35	9.996351	9.996354	9.996357	9.996360	9.996362	9.996365	24	5.
36	9.996368	9.996370	9.996373	9.996376	9.996379	9.996381	23	6.
37	9.996384	9.996387	9.996390	9.996392	9.996395	9.996398	22	7.
38	9.996400	9.996403	9.996406	9.996409	9.996411	9.996414	21	8.
39	9.996417	9.996419	9.996422	9.996425	9.996428	9.996430	20	9.
40	9.996433	9.996436	9.996438	9.996441	9.996444	9.996447	19	
41	9.996449	9.996452	9.996455	9.996457	9.996460	9.996463	18	1
42	9.996465	9.996468	9.996471	9.996473	9.996476	9.996479	17	2.
43	9.996482	9.996484	9.996487	9.996490	9.996492	9.996495	16	3.
44	9.996498	9.996500	9.996503	9.996506	9.996508	9.996511	15	4.
45	9.996514	9.996516	9.996519	9.996522	9.996525	9.996527	14	5.
46	9.996530	9.996533	9.996535	9.996538	9.996541	9.996543	13	6.
47	9.996546	9.996549	9.996551	9.996554	9.996557	9.996559	12	7.
48	9.996562	9.996565	9.996567	9.996570	9.996573	9.996575	11	8.
49	9.996578	9.996581	9.996583	9.996586	9.996588	9.996591	10	9.
50	9.996594	9.996596	9.996599	9.996602	9.996604	9.996607	9	
51	9.996610	9.996612	9.996615	9.996618	9.996620	9.996623	8	1
52	9.996625	9.996628	9.996631	9.996633	9.996636	9.996639	7	2.
53	9.996641	9.996644	9.996647	9.996649	9.996652	9.996654	6	3.
54	9.996657	9.996660	9.996662	9.996665	9.996667	9.996670	5	4.
55	9.996673	9.996675	9.996678	9.996680	9.996683	9.996686	4	5.
56	9.996688	9.996691	9.996694	9.996696	9.996699	9.996701	3	6.
57	9.996704	9.996707	9.996709	9.996712	9.996714	9.996717	2	7.
58	9.996720	9.996722	9.996725	9.996727	9.996730	9.996733	1	8.
59	9.996735	9.996738	9.996740	9.996743	9.996745	9.996748	0	9.
Minutes	60'	50'	40'	30'	20'	10'	Minutes	Proport.
Co-sine of 7 degrees, or Sine of 97 degrees.								

LOGARITHMIC SINES.

Sine of 83 degrees, or Co-sine of 173 degrees.						Minutes	Proport. parts.
	10'	20'	30'	40'	50'		
751	9.996753	9.996756	9.996759	9.996761	9.996764	59	
766	9.996769	9.996771	9.996774	9.996776	9.996779	58	1" = 0
782	9.996784	9.996787	9.996789	9.996792	9.996794	57	2. 1
797	9.996800	9.996802	9.996805	9.996807	9.996810	56	3. 1
812	9.996815	9.996818	9.996820	9.996823	9.996825	55	4. 1
828	9.996830	9.996833	9.996835	9.996838	9.996841	54	5. 1
843	9.996846	9.996848	9.996851	9.996853	9.996856	53	6. 2
858	9.996861	9.996863	9.996866	9.996868	9.996871	52	7. 2
874	9.996876	9.996879	9.996881	9.996884	9.996886	51	8. 2
889	9.996891	9.996894	9.996896	9.996899	9.996901	50	9. 2
904	9.996906	9.996909	9.996911	9.996914	9.996917	49	
919	9.996922	9.996924	9.996927	9.996929	9.996932	48	1 = 0
934	9.996937	9.996939	9.996942	9.996944	9.996947	47	2. 1
949	9.996952	9.996954	9.996957	9.996959	9.996962	46	3. 1
964	9.996967	9.996969	9.996972	9.996974	9.996977	45	4. 1
979	9.996982	9.996984	9.996987	9.996989	9.996992	44	5. 1
994	9.996997	9.996999	9.997002	9.997004	9.997007	43	6. 2
009	9.997011	9.997014	9.997016	9.997019	9.997021	42	7. 2
024	9.997026	9.997029	9.997031	9.997034	9.997036	41	8. 2
039	9.997041	9.997044	9.997046	9.997049	9.997051	40	9. 2
053	9.997056	9.997058	9.997061	9.997063	9.997066	39	
068	9.997071	9.997073	9.997076	9.997078	9.997080	38	1 = 0
083	9.997085	9.997088	9.997090	9.997093	9.997095	37	2. 0
098	9.997100	9.997102	9.997105	9.997107	9.997110	36	3. 1
112	9.997115	9.997117	9.997120	9.997122	9.997124	35	4. 1
127	9.997129	9.997132	9.997134	9.997137	9.997139	34	5. 1
141	9.997144	9.997146	9.997149	9.997151	9.997153	33	6. 1
156	9.997158	9.997161	9.997163	9.997166	9.997168	32	7. 2
170	9.997173	9.997175	9.997178	9.997180	9.997182	31	8. 2
185	9.997187	9.997190	9.997192	9.997194	9.997197	30	9. 2
200	9.997202	9.997204	9.997206	9.997209	9.997211	29	
214	9.997216	9.997218	9.997221	9.997223	9.997226	28	1 = 0
228	9.997230	9.997233	9.997235	9.997237	9.997240	27	2. 0
242	9.997245	9.997247	9.997249	9.997252	9.997254	26	3. 1
257	9.997259	9.997261	9.997264	9.997266	9.997268	25	4. 1
271	9.997273	9.997276	9.997278	9.997280	9.997283	24	5. 1
285	9.997287	9.997290	9.997292	9.997294	9.997297	23	6. 1
299	9.997301	9.997304	9.997306	9.997309	9.997311	22	7. 2
313	9.997316	9.997318	9.997320	9.997323	9.997325	21	8. 2
327	9.997330	9.997332	9.997334	9.997337	9.997339	20	9. 2
341	9.997344	9.997346	9.997348	9.997351	9.997353	19	
355	9.997358	9.997360	9.997362	9.997365	9.997367	18	1 = 0
369	9.997372	9.997374	9.997376	9.997379	9.997381	17	2. 0
383	9.997386	9.997388	9.997390	9.997392	9.997395	16	3. 1
397	9.997399	9.997402	9.997404	9.997406	9.997409	15	4. 1
411	9.997413	9.997416	9.997418	9.997420	9.997422	14	5. 1
425	9.997427	9.997429	9.997432	9.997434	9.997436	13	6. 1
439	9.997441	9.997443	9.997445	9.997448	9.997450	12	7. 2
452	9.997455	9.997457	9.997459	9.997461	9.997464	11	8. 2
466	9.997468	9.997471	9.997473	9.997475	9.997477	10	9. 2
480	9.997482	9.997484	9.997487	9.997489	9.997491	9	
493	9.997496	9.997498	9.997500	9.997502	9.997505	8	1 = 0
507	9.997509	9.997511	9.997514	9.997516	9.997518	7	2. 0
520	9.997523	9.997525	9.997527	9.997529	9.997532	6	3. 1
534	9.997536	9.997539	9.997541	9.997543	9.997545	5	4. 1
547	9.997550	9.997552	9.997554	9.997556	9.997559	4	5. 1
561	9.997563	9.997565	9.997568	9.997570	9.997572	3	6. 1
574	9.997577	9.997579	9.997581	9.997583	9.997585	2	7. 2
588	9.997590	9.997592	9.997594	9.997597	9.997599	1	8. 2
601	9.997603	9.997605	9.997608	9.997610	9.997612	0	9. 2
	50'	40'	30'	20'	10'	Minutes	Proport. parts.
Co-sine of 6 degrees, or Sine of 96 degrees.							

LOGARITHMIC SINES.

		Sine of 84 degrees, or Co-sine of 174 degrees.							
Minutes		0"	10"	20"	30"	40"	50"	Minutes	
0		9.997614	9.997617	9.997619	9.997621	9.997623	9.997625	59	
1		9.997628	9.997630	9.997632	9.997634	9.997636	9.997639	58	1"
2		9.997641	9.997643	9.997645	9.997647	9.997650	9.997652	57	2
3		9.997654	9.997656	9.997658	9.997661	9.997663	9.997665	56	3
4		9.997667	9.997669	9.997672	9.997674	9.997676	9.997678	55	4
5		9.997680	9.997682	9.997685	9.997687	9.997689	9.997691	54	5
6		9.997693	9.997695	9.997698	9.997700	9.997702	9.997704	53	6
7		9.997706	9.997709	9.997711	9.997713	9.997715	9.997717	52	7
8		9.997719	9.997722	9.997724	9.997726	9.997728	9.997730	51	8
9		9.997732	9.997734	9.997737	9.997739	9.997741	9.997743	50	9
10		9.997745	9.997747	9.997750	9.997752	9.997754	9.997756	49	
11		9.997758	9.997760	9.997762	9.997765	9.997767	9.997769	48	1 =
12		9.997771	9.997773	9.997775	9.997777	9.997780	9.997782	47	2
13		9.997784	9.997786	9.997788	9.997790	9.997792	9.997794	46	3
14		9.997797	9.997799	9.997801	9.997803	9.997805	9.997807	45	4
15		9.997809	9.997811	9.997814	9.997816	9.997818	9.997820	44	5
16		9.997822	9.997824	9.997826	9.997828	9.997830	9.997833	43	6
17		9.997835	9.997837	9.997839	9.997841	9.997843	9.997845	42	7
18		9.997847	9.997849	9.997851	9.997854	9.997856	9.997858	41	8
19		9.997860	9.997862	9.997864	9.997866	9.997868	9.997870	40	9
20		9.997872	9.997875	9.997877	9.997879	9.997881	9.997883	39	
21		9.997885	9.997887	9.997889	9.997891	9.997893	9.997895	38	1
22		9.997897	9.997900	9.997902	9.997904	9.997906	9.997908	37	2
23		9.997910	9.997912	9.997914	9.997916	9.997918	9.997920	36	3
24		9.997922	9.997924	9.997926	9.997929	9.997931	9.997933	35	4
25		9.997935	9.997937	9.997939	9.997941	9.997943	9.997945	34	5
26		9.997947	9.997949	9.997951	9.997953	9.997955	9.997957	33	6
27		9.997959	9.997961	9.997963	9.997965	9.997967	9.997970	32	7
28		9.997972	9.997974	9.997976	9.997978	9.997980	9.997982	31	8
29		9.997984	9.997986	9.997988	9.997990	9.997992	9.997994	30	9
30		9.997996	9.997998	9.998000	9.998002	9.998004	9.998006	29	
31		9.998008	9.998010	9.998012	9.998014	9.998016	9.998018	28	1
32		9.998020	9.998022	9.998024	9.998026	9.998028	9.998030	27	2
33		9.998032	9.998034	9.998036	9.998038	9.998040	9.998042	26	3
34		9.998044	9.998046	9.998048	9.998050	9.998052	9.998054	25	4
35		9.998056	9.998058	9.998060	9.998062	9.998064	9.998066	24	5
36		9.998068	9.998070	9.998072	9.998074	9.998076	9.998078	23	6
37		9.998080	9.998082	9.998084	9.998086	9.998088	9.998090	22	7
38		9.998092	9.998094	9.998096	9.998098	9.998100	9.998102	21	8
39		9.998104	9.998106	9.998108	9.998110	9.998112	9.998114	20	9
40		9.998116	9.998118	9.998120	9.998122	9.998124	9.998126	19	
41		9.998128	9.998129	9.998131	9.998133	9.998135	9.998137	18	1
42		9.998139	9.998141	9.998143	9.998145	9.998147	9.998149	17	2
43		9.998151	9.998153	9.998155	9.998157	9.998159	9.998161	16	3
44		9.998163	9.998165	9.998167	9.998168	9.998170	9.998172	15	4
45		9.998174	9.998176	9.998178	9.998180	9.998182	9.998184	14	5
46		9.998186	9.998188	9.998190	9.998192	9.998194	9.998195	13	6
47		9.998197	9.998199	9.998201	9.998203	9.998205	9.998207	12	7
48		9.998209	9.998211	9.998213	9.998215	9.998217	9.998218	11	8
49		9.998220	9.998222	9.998224	9.998226	9.998228	9.998230	10	9
50		9.998232	9.998234	9.998236	9.998238	9.998239	9.998241	9	
51		9.998243	9.998245	9.998247	9.998249	9.998251	9.998253	8	1
52		9.998255	9.998256	9.998258	9.998260	9.998262	9.998264	7	2
53		9.998266	9.998268	9.998270	9.998272	9.998273	9.998275	6	3
54		9.998277	9.998279	9.998281	9.998283	9.998285	9.998287	5	4
55		9.998289	9.998290	9.998292	9.998294	9.998296	9.998298	4	5
56		9.998300	9.998302	9.998303	9.998305	9.998307	9.998309	3	6
57		9.998311	9.998313	9.998315	9.998316	9.998318	9.998320	2	7
58		9.998322	9.998324	9.998326	9.998328	9.998329	9.998331	1	8
59		9.998333	9.998335	9.998337	9.998339	9.998341	9.998342	0	9
Minutes		60"	50"	40"	30"	20"	10"	Minutes	
		Co-sine of 5 degrees, or sine of 95 degrees.							

LOGARITHMIC SINES.

Minutes	Sine of 86 degrees, or Co-sine of 176 degrees.						Minutes	Seconds
	0'	10'	20'	30'	40'	50'		
0	9.998941	9.998942	9.998944	9.998945	9.998947	9.998948	59	
1	9.998950	9.998951	9.998953	9.998954	9.998955	9.998957	58	1"
2	9.998958	9.998960	9.998961	9.998963	9.998964	9.998966	57	2"
3	9.998967	9.998969	9.998970	9.998971	9.998973	9.998974	56	3"
4	9.998976	9.998977	9.998979	9.998980	9.998982	9.998983	55	4"
5	9.998984	9.998986	9.998987	9.998989	9.998990	9.998992	54	5"
6	9.998993	9.998995	9.998996	9.998997	9.998999	9.999000	53	6"
7	9.999002	9.999003	9.999005	9.999006	9.999007	9.999009	52	7"
8	9.999010	9.999012	9.999013	9.999015	9.999016	9.999017	51	8"
9	9.999019	9.999020	9.999022	9.999023	9.999024	9.999026	50	9"
10	9.999027	9.999029	9.999030	9.999031	9.999033	9.999034	49	
11	9.999036	9.999037	9.999038	9.999040	9.999041	9.999043	48	1"
12	9.999044	9.999045	9.999047	9.999048	9.999050	9.999051	47	2"
13	9.999053	9.999054	9.999055	9.999057	9.999058	9.999059	46	3"
14	9.999061	9.999062	9.999064	9.999065	9.999066	9.999068	45	4"
15	9.999069	9.999070	9.999072	9.999073	9.999075	9.999076	44	5"
16	9.999077	9.999079	9.999080	9.999082	9.999083	9.999084	43	6"
17	9.999086	9.999087	9.999088	9.999090	9.999091	9.999092	42	7"
18	9.999094	9.999095	9.999096	9.999098	9.999099	9.999101	41	8"
19	9.999102	9.999103	9.999105	9.999106	9.999107	9.999109	40	9"
20	9.999110	9.999111	9.999113	9.999114	9.999115	9.999117	39	
21	9.999118	9.999119	9.999121	9.999122	9.999124	9.999125	38	1"
22	9.999126	9.999128	9.999129	9.999130	9.999132	9.999133	37	2"
23	9.999134	9.999136	9.999137	9.999138	9.999139	9.999141	36	3"
24	9.999142	9.999143	9.999145	9.999146	9.999147	9.999149	35	4"
25	9.999150	9.999151	9.999153	9.999154	9.999155	9.999157	34	5"
26	9.999158	9.999159	9.999161	9.999162	9.999163	9.999165	33	6"
27	9.999166	9.999167	9.999168	9.999170	9.999171	9.999172	32	7"
28	9.999174	9.999175	9.999176	9.999178	9.999179	9.999180	31	8"
29	9.999181	9.999183	9.999184	9.999185	9.999187	9.999188	30	9"
30	9.999189	9.999190	9.999192	9.999193	9.999194	9.999196	29	
31	9.999197	9.999198	9.999199	9.999201	9.999202	9.999203	28	1"
32	9.999205	9.999206	9.999207	9.999208	9.999210	9.999211	27	2"
33	9.999212	9.999213	9.999215	9.999216	9.999217	9.999219	26	3"
34	9.999220	9.999221	9.999222	9.999224	9.999225	9.999226	25	4"
35	9.999227	9.999229	9.999230	9.999231	9.999232	9.999234	24	5"
36	9.999235	9.999236	9.999237	9.999239	9.999240	9.999241	23	6"
37	9.999242	9.999244	9.999245	9.999246	9.999247	9.999249	22	7"
38	9.999250	9.999251	9.999252	9.999254	9.999255	9.999256	21	8"
39	9.999257	9.999258	9.999260	9.999261	9.999262	9.999263	20	9"
40	9.999265	9.999266	9.999267	9.999268	9.999269	9.999271	19	
41	9.999272	9.999273	9.999274	9.999276	9.999277	9.999278	18	1"
42	9.999279	9.999280	9.999282	9.999283	9.999284	9.999285	17	2"
43	9.999286	9.999288	9.999289	9.999290	9.999291	9.999293	16	3"
44	9.999294	9.999295	9.999296	9.999297	9.999299	9.999300	15	4"
45	9.999301	9.999302	9.999303	9.999304	9.999306	9.999307	14	5"
46	9.999308	9.999309	9.999310	9.999312	9.999313	9.999314	13	6"
47	9.999315	9.999316	9.999318	9.999319	9.999320	9.999321	12	7"
48	9.999322	9.999323	9.999325	9.999326	9.999327	9.999328	11	8"
49	9.999329	9.999330	9.999332	9.999333	9.999334	9.999335	10	9"
50	9.999336	9.999338	9.999339	9.999340	9.999341	9.999342	9	
51	9.999343	9.999344	9.999346	9.999347	9.999348	9.999349	8	1"
52	9.999350	9.999351	9.999353	9.999354	9.999355	9.999356	7	2"
53	9.999357	9.999358	9.999359	9.999361	9.999362	9.999363	6	3"
54	9.999364	9.999365	9.999366	9.999367	9.999369	9.999370	5	4"
55	9.999371	9.999372	9.999373	9.999374	9.999375	9.999376	4	5"
56	9.999378	9.999379	9.999380	9.999381	9.999382	9.999383	3	6"
57	9.999384	9.999385	9.999387	9.999388	9.999389	9.999390	2	7"
58	9.999391	9.999392	9.999393	9.999394	9.999396	9.999397	1	8"
59	9.999398	9.999399	9.999400	9.999401	9.999402	9.999403	0	9"
Minutes	60'	50'	40'	30'	20'	10'	Minutes	
Co-sine of 3 degrees, or sine of 93 degrees.								

LOGARITHMIC SINES.

Sine of 87 degrees, or Co-sine of 177 degrees.						Minutes	Proport. parts.
	10'	20'	30'	40'	50'		
4	9.999405	9.999407	9.999408	9.999409	9.999410	59	
1	9.999412	9.999413	9.999414	9.999415	9.999416	58	1" = 0
8	9.999419	9.999420	9.999421	9.999422	9.999423	57	2. 0
4	9.999425	9.999426	9.999427	9.999428	9.999429	56	3. 0
1	9.999432	9.999433	9.999434	9.999435	9.999436	55	4. 0
7	9.999438	9.999439	9.999440	9.999441	9.999442	54	5. 1
3	9.999445	9.999446	9.999447	9.999448	9.999449	53	6. 1
0	9.999451	9.999452	9.999453	9.999454	9.999455	52	7. 1
6	9.999457	9.999458	9.999459	9.999460	9.999461	51	8. 1
3	9.999464	9.999465	9.999466	9.999467	9.999468	50	9. 1
9	9.999470	9.999471	9.999472	9.999473	9.999474	49	
5	9.999476	9.999477	9.999478	9.999479	9.999480	48	1 = 0
1	9.999482	9.999483	9.999484	9.999485	9.999486	47	2. 0
7	9.999488	9.999489	9.999490	9.999491	9.999492	46	3. 0
3	9.999494	9.999495	9.999497	9.999498	9.999499	45	4. 0
0	9.999501	9.999502	9.999503	9.999504	9.999505	44	5. 1
6	9.999507	9.999508	9.999509	9.999510	9.999511	43	6. 1
2	9.999513	9.999514	9.999515	9.999516	9.999517	42	7. 1
8	9.999519	9.999520	9.999521	9.999522	9.999523	41	8. 1
4	9.999524	9.999525	9.999526	9.999527	9.999528	40	9. 1
9	9.999530	9.999531	9.999532	9.999533	9.999534	39	
5	9.999536	9.999537	9.999538	9.999539	9.999540	38	1 = 0
1	9.999542	9.999543	9.999544	9.999545	9.999546	37	2. 0
7	9.999548	9.999549	9.999550	9.999551	9.999552	36	3. 0
3	9.999554	9.999555	9.999556	9.999557	9.999558	35	4. 0
8	9.999559	9.999560	9.999561	9.999562	9.999563	34	5. 0
4	9.999565	9.999566	9.999567	9.999568	9.999569	33	6. 1
0	9.999571	9.999572	9.999573	9.999574	9.999575	32	7. 1
5	9.999576	9.999577	9.999578	9.999579	9.999580	31	8. 1
1	9.999582	9.999583	9.999584	9.999585	9.999586	30	9. 1
6	9.999587	9.999588	9.999589	9.999590	9.999591	29	
2	9.999593	9.999594	9.999595	9.999596	9.999597	28	1 = 0
7	9.999598	9.999599	9.999600	9.999601	9.999602	27	2. 0
3	9.999604	9.999605	9.999606	9.999607	9.999608	26	3. 0
8	9.999609	9.999610	9.999611	9.999612	9.999613	25	4. 0
4	9.999615	9.999615	9.999616	9.999617	9.999618	24	5. 0
9	9.999620	9.999621	9.999621	9.999622	9.999623	23	6. 1
5	9.999625	9.999626	9.999627	9.999628	9.999628	22	7. 1
0	9.999630	9.999631	9.999632	9.999633	9.999634	21	8. 1
5	9.999635	9.999636	9.999637	9.999638	9.999639	20	9. 1
1	9.999641	9.999641	9.999642	9.999643	9.999644	19	
6	9.999646	9.999647	9.999647	9.999648	9.999649	18	1 = 0
2	9.999651	9.999652	9.999653	9.999653	9.999654	17	2. 0
7	9.999656	9.999657	9.999658	9.999658	9.999659	16	3. 0
3	9.999661	9.999662	9.999663	9.999663	9.999664	15	4. 0
8	9.999666	9.999667	9.999667	9.999668	9.999669	14	5. 0
4	9.999671	9.999672	9.999672	9.999673	9.999674	13	6. 0
9	9.999676	9.999676	9.999677	9.999678	9.999679	12	7. 1
5	9.999681	9.999681	9.999682	9.999683	9.999684	11	8. 1
0	9.999685	9.999686	9.999687	9.999688	9.999689	10	9. 1
5	9.999690	9.999691	9.999692	9.999693	9.999693	9	
1	9.999695	9.999696	9.999696	9.999697	9.999698	8	1 = 0
6	9.999700	9.999700	9.999701	9.999702	9.999703	7	2. 0
2	9.999704	9.999705	9.999706	9.999707	9.999707	6	3. 0
7	9.999709	9.999710	9.999711	9.999711	9.999712	5	4. 0
3	9.999714	9.999714	9.999715	9.999716	9.999717	4	5. 0
8	9.999718	9.999719	9.999720	9.999720	9.999721	3	6. 0
4	9.999723	9.999723	9.999724	9.999725	9.999726	2	7. 0
9	9.999727	9.999728	9.999729	9.999729	9.999730	1	8. 1
5	9.999732	9.999732	9.999733	9.999734	9.999735	0	9. 1
50'	40'	30'	20'	10'		Minutes	Proport. parts.
Co-sine of 2 degrees, or Sine of 92 degrees.							

LOGARITHMIC SINES.

Minutes	Sine of 88 degrees, or Co-sine of 178 degrees.						Minutes	Proport.
	0'	10'	20'	30'	40'	50'		
0	9.999735	9.999736	9.999737	9.999738	9.999738	9.999739	59	
1	9.999740	9.999740	9.999741	9.999742	9.999743	9.999743	58	1" =
2	9.999744	9.999745	9.999746	9.999746	9.999747	9.999748	57	2.
3	9.999748	9.999749	9.999750	9.999751	9.999751	9.999752	56	3.
4	9.999753	9.999753	9.999754	9.999755	9.999756	9.999756	55	4.
5	9.999757	9.999758	9.999758	9.999759	9.999760	9.999760	54	5.
6	9.999761	9.999762	9.999763	9.999763	9.999764	9.999765	53	6.
7	9.999765	9.999766	9.999767	9.999767	9.999768	9.999769	52	7.
8	9.999769	9.999770	9.999771	9.999771	9.999772	9.999773	51	8.
9	9.999774	9.999774	9.999775	9.999776	9.999776	9.999777	50	9.
10	9.999778	9.999778	9.999779	9.999780	9.999780	9.999781	49	
11	9.999782	9.999782	9.999783	9.999784	9.999784	9.999785	48	1 =
12	9.999786	9.999786	9.999787	9.999788	9.999788	9.999789	47	2.
13	9.999790	9.999790	9.999791	9.999792	9.999792	9.999793	46	3.
14	9.999794	9.999794	9.999795	9.999795	9.999796	9.999797	45	4.
15	9.999797	9.999798	9.999799	9.999799	9.999800	9.999801	44	5.
16	9.999801	9.999802	9.999802	9.999803	9.999804	9.999804	43	6.
17	9.999805	9.999806	9.999806	9.999807	9.999808	9.999808	42	7.
18	9.999809	9.999809	9.999810	9.999811	9.999811	9.999812	41	8.
19	9.999813	9.999813	9.999814	9.999814	9.999815	9.999816	40	9.
20	9.999816	9.999817	9.999817	9.999818	9.999819	9.999819	39	
21	9.999820	9.999820	9.999821	9.999822	9.999822	9.999823	38	1 =
22	9.999823	9.999824	9.999825	9.999825	9.999826	9.999826	37	2.
23	9.999827	9.999828	9.999828	9.999829	9.999829	9.999830	36	3.
24	9.999831	9.999831	9.999832	9.999832	9.999833	9.999834	35	4.
25	9.999834	9.999835	9.999835	9.999836	9.999836	9.999837	34	5.
26	9.999838	9.999838	9.999839	9.999839	9.999840	9.999840	33	6.
27	9.999841	9.999842	9.999842	9.999843	9.999843	9.999844	32	7.
28	9.999844	9.999845	9.999846	9.999846	9.999847	9.999847	31	8.
29	9.999848	9.999848	9.999849	9.999849	9.999850	9.999851	30	9.
30	9.999851	9.999852	9.999852	9.999853	9.999853	9.999854	29	
31	9.999854	9.999855	9.999856	9.999856	9.999857	9.999857	28	1 =
32	9.999858	9.999858	9.999859	9.999859	9.999860	9.999860	27	2.
33	9.999861	9.999861	9.999862	9.999862	9.999863	9.999864	26	3.
34	9.999864	9.999865	9.999865	9.999866	9.999866	9.999867	25	4.
35	9.999867	9.999868	9.999868	9.999869	9.999869	9.999870	24	5.
36	9.999870	9.999871	9.999871	9.999872	9.999872	9.999873	23	6.
37	9.999873	9.999874	9.999874	9.999875	9.999875	9.999876	22	7.
38	9.999876	9.999877	9.999877	9.999878	9.999878	9.999879	21	8.
39	9.999879	9.999880	9.999880	9.999881	9.999881	9.999882	20	9.
40	9.999882	9.999883	9.999883	9.999884	9.999884	9.999885	19	
41	9.999885	9.999886	9.999886	9.999887	9.999887	9.999888	18	1 =
42	9.999888	9.999889	9.999889	9.999890	9.999890	9.999891	17	2.
43	9.999891	9.999892	9.999892	9.999892	9.999893	9.999893	16	3.
44	9.999894	9.999894	9.999895	9.999895	9.999896	9.999896	15	4.
45	9.999897	9.999897	9.999898	9.999898	9.999898	9.999899	14	5.
46	9.999899	9.999900	9.999900	9.999901	9.999901	9.999902	13	6.
47	9.999902	9.999903	9.999903	9.999903	9.999904	9.999904	12	7.
48	9.999905	9.999905	9.999906	9.999906	9.999906	9.999907	11	8.
49	9.999907	9.999908	9.999908	9.999909	9.999909	9.999910	10	9.
50	9.999910	9.999910	9.999911	9.999911	9.999912	9.999912	9	
51	9.999913	9.999913	9.999913	9.999914	9.999914	9.999915	8	1 =
52	9.999915	9.999915	9.999916	9.999916	9.999917	9.999917	7	2.
53	9.999918	9.999918	9.999918	9.999919	9.999919	9.999920	6	3.
54	9.999920	9.999920	9.999921	9.999921	9.999922	9.999922	5	4.
55	9.999922	9.999923	9.999923	9.999924	9.999924	9.999924	4	5.
56	9.999925	9.999925	9.999925	9.999926	9.999926	9.999927	3	6.
57	9.999927	9.999927	9.999928	9.999928	9.999929	9.999929	2	7.
58	9.999929	9.999930	9.999930	9.999930	9.999931	9.999931	1	8.
59	9.999932	9.999932	9.999932	9.999933	9.999933	9.999933	0	9.
Minutes	60'	50'	40'	30'	20'	10'	Minutes	Proport.
Co-sine of 1 degree, or Sine of 91 degrees.								

LOGARITHMIC SINES.

Sine of 89 degrees, or Co-sine of 179 degrees.						Minutes	Proport. parts.
0°	10°	20°	30°	40°	50°		
99934	9.999934	9.999935	9.999935	9.999935	9.999936	59	
99936	9.999936	9.999937	9.999937	9.999937	9.999938	58	1" = 0
99938	9.999939	9.999939	9.999939	9.999940	9.999940	57	2. 0
99940	9.999941	9.999941	9.999941	9.999942	9.999942	56	3. 0
99942	9.999943	9.999943	9.999943	9.999944	9.999944	55	4. 0
99944	9.999945	9.999945	9.999945	9.999946	9.999946	54	5. 0
99946	9.999947	9.999947	9.999947	9.999948	9.999948	53	6. 0
99948	9.999949	9.999949	9.999949	9.999950	9.999950	52	7. 0
99950	9.999951	9.999951	9.999951	9.999952	9.999952	51	8. 0
99952	9.999952	9.999953	9.999953	9.999953	9.999954	50	9. 0
99954	9.999954	9.999955	9.999955	9.999955	9.999956	49	
99956	9.999956	9.999956	9.999957	9.999957	9.999957	48	1 = 0
99958	9.999958	9.999958	9.999959	9.999959	9.999959	47	2. 0
99959	9.999960	9.999960	9.999960	9.999961	9.999961	46	3. 0
99961	9.999961	9.999962	9.999962	9.999962	9.999962	45	4. 0
99963	9.999963	9.999963	9.999964	9.999964	9.999964	44	5. 0
99964	9.999965	9.999965	9.999965	9.999965	9.999966	43	6. 0
99966	9.999966	9.999967	9.999967	9.999967	9.999967	42	7. 0
99968	9.999968	9.999968	9.999968	9.999969	9.999969	41	8. 0
99969	9.999969	9.999970	9.999970	9.999970	9.999970	40	9. 0
9971	9.999971	9.999971	9.999971	9.999972	9.999972	39	
9972	9.999972	9.999973	9.999973	9.999973	9.999973	38	1 = 0
9973	9.999974	9.999974	9.999974	9.999974	9.999975	37	2. 0
9975	9.999975	9.999975	9.999976	9.999976	9.999976	36	3. 0
9976	9.999976	9.999977	9.999977	9.999977	9.999977	35	4. 0
9977	9.999978	9.999978	9.999978	9.999978	9.999979	34	5. 0
9979	9.999979	9.999979	9.999979	9.999980	9.999980	33	6. 0
9980	9.999980	9.999980	9.999981	9.999981	9.999981	32	7. 0
9981	9.999981	9.999982	9.999982	9.999982	9.999982	31	8. 0
9982	9.999982	9.999983	9.999983	9.999983	9.999983	30	9. 0
9983	9.999984	9.999984	9.999984	9.999984	9.999984	29	
9985	9.999985	9.999985	9.999985	9.999985	9.999985	28	1 = 0
9986	9.999986	9.999986	9.999986	9.999986	9.999986	27	2. 0
9987	9.999987	9.999987	9.999987	9.999987	9.999987	26	3. 0
9988	9.999988	9.999988	9.999988	9.999988	9.999988	25	4. 0
9988	9.999989	9.999989	9.999989	9.999989	9.999989	24	5. 0
9989	9.999990	9.999990	9.999990	9.999990	9.999990	23	6. 0
9990	9.999990	9.999991	9.999991	9.999991	9.999991	22	7. 0
9991	9.999991	9.999991	9.999991	9.999992	9.999992	21	8. 0
9992	9.999992	9.999992	9.999992	9.999992	9.999992	20	9. 0
9993	9.999993	9.999993	9.999993	9.999993	9.999993	19	
9993	9.999993	9.999994	9.999994	9.999994	9.999994	18	1 = 0
9994	9.999994	9.999994	9.999994	9.999994	9.999995	17	2. 0
9995	9.999995	9.999995	9.999995	9.999995	9.999995	16	3. 0
9995	9.999995	9.999995	9.999996	9.999996	9.999996	15	4. 0
9996	9.999996	9.999996	9.999996	9.999996	9.999996	14	5. 0
9996	9.999996	9.999997	9.999997	9.999997	9.999997	13	6. 0
9997	9.999997	9.999997	9.999997	9.999997	9.999997	12	7. 0
9997	9.999997	9.999997	9.999998	9.999998	9.999998	11	8. 0
9998	9.999998	9.999998	9.999998	9.999998	9.999998	10	9. 0
9998	9.999998	9.999998	9.999998	9.999998	9.999998	9	
9999	9.999999	9.999999	9.999999	9.999999	9.999999	8	1 = 0
9999	9.999999	9.999999	9.999999	9.999999	9.999999	7	2. 0
9999	9.999999	9.999999	9.999999	9.999999	9.999999	6	3. 0
9999	9.999999	9.999999	9.999999	9.999999	9.999999	5	4. 0
1000	10.000000	10.000000	10.000000	10.000000	10.000000	4	5. 0
1000	10.000000	10.000000	10.000000	10.000000	10.000000	3	6. 0
1000	10.000000	10.000000	10.000000	10.000000	10.000000	2	7. 0
1000	10.000000	10.000000	10.000000	10.000000	10.000000	1	8. 0
1000	10.000000	10.000000	10.000000	10.000000	10.000000	0	9. 0
1°	50°	40°	30°	20°	10°	Minutes	Proport. parts.
Co-sine of 0 degree, or Sine of 90 degrees.							

TABLE XXXVII:

LOGARITHMIC TANGENTS.

Minutes Seconds		Tangent of 0 degrees, or Co-tangent of 90 degrees.									
		0°	1°	2°	3°	4°	5°	6°	7°	8°	9°
0	0	0.000000	4.685575	4.986605	5.162690	5.287635	5.384545	5.463726	5.530673	5.588665	5.6
10	5	5.685575	5.720968	5.764750	5.799518	5.831703	5.861660	5.889665	5.916024	5.940847	5.9
20	5	5.986605	6.007794	6.027998	6.047303	6.065780	6.083515	6.100548	6.116939	6.132733	6.1
30	5	6.162666	6.176937	6.190725	6.204088	6.217054	6.229634	6.241877	6.253777	6.265359	6.2
40	5	6.287635	6.298359	6.308824	6.319043	6.329028	6.338787	6.348333	6.357673	6.366816	6.3
50	5	6.384545	6.393145	6.401578	6.409851	6.417969	6.425938	6.433763	6.441450	6.449003	6.4
1	0	6.463726	6.470905	6.477967	6.484915	6.491755	6.498488	6.505119	6.511650	6.518084	6.5
10	5	6.530673	6.538333	6.542907	6.548998	6.554806	6.560366	6.565683	6.570660	6.576706	6.6
20	5	6.588665	6.594060	6.599389	6.604653	6.609854	6.614994	6.620073	6.625094	6.630058	6.6
30	5	6.639817	6.644616	6.649363	6.654058	6.658703	6.663299	6.667846	6.672347	6.676801	6.7
40	5	6.685575	6.689806	6.694173	6.698412	6.702608	6.706764	6.710881	6.714959	6.718999	6.7
50	5	6.726968	6.730898	6.734793	6.738653	6.742480	6.746273	6.750033	6.753761	6.757457	6.7
2	0	6.764756	6.768360	6.771935	6.775480	6.778997	6.782485	6.785946	6.789379	6.792785	6.7
10	5	6.799518	6.803246	6.806949	6.809427	6.812680	6.815909	6.819114	6.822296	6.825454	6.8
20	5	6.831703	6.834794	6.837803	6.840911	6.843937	6.846943	6.849928	6.852892	6.855837	6.8
30	5	6.861666	6.864552	6.867419	6.870266	6.873096	6.875907	6.878700	6.881475	6.884232	6.8
40	5	6.889665	6.892401	6.895099	6.897763	6.900419	6.903059	6.905683	6.908291	6.910884	6.9
50	5	6.916024	6.918571	6.921103	6.923621	6.926124	6.928613	6.931088	6.933548	6.935995	6.9
3	0	6.940848	6.943354	6.945846	6.948320	6.950793	6.953247	6.955688	6.957417	6.959733	6.9
10	5	6.964329	6.966808	6.968876	6.971132	6.973377	6.975610	6.977831	6.980041	6.982246	6.9
20	5	6.986605	6.988771	6.990926	6.993071	6.995205	6.997329	6.999442	7.001545	7.003638	7.0
30	5	7.007794	7.009858	7.011911	7.013955	7.015989	7.018014	7.020029	7.022035	7.024032	7.0
40	5	7.027998	7.029967	7.031928	7.033885	7.035837	7.037783	7.039684	7.041601	7.043510	7.0
50	5	7.047303	7.049187	7.051063	7.052931	7.054791	7.056643	7.058487	7.060323	7.062152	7.0
4	0	7.065786	7.067529	7.069390	7.071186	7.072965	7.074741	7.076510	7.078272	7.080027	7.0
10	5	7.083515	7.085246	7.086976	7.088660	7.090409	7.092115	7.093815	7.095508	7.097195	7.0
20	5	7.100548	7.102216	7.103876	7.105531	7.107179	7.108821	7.110457	7.112086	7.113710	7.1
30	5	7.116939	7.118544	7.120144	7.121738	7.123326	7.124908	7.126484	7.128055	7.129620	7.1
40	5	7.132733	7.134282	7.135824	7.137362	7.138894	7.140420	7.141941	7.143457	7.144968	7.1
50	5	7.147973	7.149468	7.150958	7.152443	7.153923	7.155397	7.156867	7.158332	7.159791	7.1
5	0	7.162666	7.164142	7.165582	7.167018	7.168449	7.169875	7.171297	7.172714	7.174126	7.1
10	5	7.176937	7.178336	7.179730	7.181120	7.182505	7.183886	7.185262	7.186635	7.188002	7.1
20	5	7.190725	7.192080	7.193431	7.194778	7.196120	7.197459	7.198793	7.200123	7.201449	7.2
30	5	7.204909	7.205403	7.206713	7.208020	7.209323	7.210620	7.211915	7.213205	7.214492	7.2
40	5	7.217054	7.218330	7.219601	7.220869	7.222134	7.223394	7.224651	7.225905	7.227155	7.2
50	5	7.229643	7.230882	7.232118	7.233350	7.234579	7.235804	7.237025	7.238244	7.239458	7.2
6	0	7.241878	7.243083	7.244284	7.245482	7.246677	7.247868	7.249056	7.250241	7.251423	7.2
10	5	7.253777	7.254949	7.256118	7.257284	7.258447	7.259607	7.260763	7.261917	7.263067	7.2
20	5	7.265359	7.266500	7.267639	7.268774	7.269907	7.271036	7.272161	7.273286	7.274407	7.2
30	5	7.276640	7.277752	7.278862	7.279968	7.281072	7.282173	7.283271	7.284366	7.285459	7.2
40	5	7.287635	7.288730	7.289802	7.290868	7.291957	7.293030	7.294102	7.295170	7.296236	7.2
50	5	7.298359	7.299417	7.300473	7.301526	7.302576	7.303624	7.304669	7.305712	7.306752	7.3
7	0	7.308825	7.309858	7.310888	7.311916	7.312941	7.313964	7.314985	7.316003	7.317019	7.3
10	5	7.319044	7.320053	7.321059	7.322063	7.323065	7.324065	7.325062	7.326057	7.327050	7.3
20	5	7.329028	7.330014	7.330998	7.331979	7.332959	7.333936	7.334910	7.335883	7.336844	7.3
30	5	7.338788	7.339752	7.340714	7.341674	7.342631	7.343587	7.344540	7.345492	7.346441	7.3
40	5	7.348333	7.349277	7.350218	7.351157	7.352094	7.353029	7.353962	7.354893	7.355822	7.3
50	5	7.357674	7.358597	7.359518	7.360437	7.361354	7.362269	7.363181	7.364094	7.365004	7.3
8	0	7.366817	7.367721	7.368623	7.369523	7.370421	7.371317	7.372212	7.373105	7.373996	7.3
10	5	7.375772	7.376657	7.377541	7.378423	7.379303	7.380181	7.381057	7.381932	7.382805	7.3
20	5	7.384546	7.385413	7.386279	7.387144	7.388006	7.388867	7.389726	7.390584	7.391440	7.3
30	5	7.393146	7.393997	7.394846	7.395693	7.396539	7.397383	7.398226	7.399066	7.399906	7.3
40	5	7.401579	7.402414	7.403246	7.404078	7.404907	7.405735	7.406562	7.407386	7.408210	7.4
50	5	7.409852	7.410670	7.411488	7.412303	7.413117	7.413930	7.414741	7.415550	7.416358	7.4
9	0	7.417970	7.418773	7.419575	7.420376	7.421175	7.421972	7.422769	7.423563	7.424356	7.4
10	5	7.425939	7.426728	7.427515	7.428301	7.429086	7.429869	7.430651	7.431431	7.432210	7.4
20	5	7.433764	7.434539	7.435312	7.436084	7.436855	7.437624	7.438392	7.439159	7.439924	7.4
30	5	7.441451	7.442212	7.442977	7.443734	7.444488	7.445244	7.445999	7.446752	7.447504	7.4
40	5	7.449004	7.449752	7.450499	7.451245	7.451989	7.452732	7.453474	7.454214	7.454953	7.4
50	5	7.454028	7.454764	7.455498	7.456231	7.456963	7.457693	7.458422	7.459150	7.460277	7.4
		10°	9°	8°	7°	6°	5°	4°	3°	2°	
Minutes Seconds		Co-tangent of 89 degrees, or Tangent of 179 degrees.									

LOGARITHMIC TANGENTS.

Tangent of 0 degree, or Co-tangent of 90 degrees.									Seconds	Minutes
1"	2"	3"	4"	5"	6"	7"	8"	9"		
17. 7.464451	7.465173	7.465893	7.466613	7.467332	7.468049	7.468765	7.469480	7.470193	50	
18. 7.471617	7.472328	7.473037	7.473745	7.474451	7.475157	7.475861	7.476565	7.477267	40	
19. 7.478668	7.479367	7.480064	7.480761	7.481456	7.482151	7.482844	7.483536	7.484227	30	
20. 7.485606	7.486293	7.486980	7.487666	7.488350	7.489033	7.489716	7.490397	7.491077	20	
21. 7.492434	7.493111	7.493787	7.494462	7.495136	7.495809	7.496481	7.497151	7.497821	10	
22. 7.499157	7.499824	7.500490	7.501154	7.501818	7.502480	7.503142	7.503802	7.504462	0	49
23. 7.505778	7.506434	7.507090	7.507744	7.508398	7.509051	7.509702	7.510353	7.511003	50	
24. 7.512299	7.512946	7.513592	7.514230	7.514880	7.515523	7.516165	7.516806	7.517446	40	
25. 7.518724	7.519361	7.519997	7.520633	7.521267	7.521901	7.522533	7.523165	7.523796	30	
26. 7.525055	7.525683	7.526310	7.526936	7.527561	7.528186	7.528809	7.529432	7.530054	20	
27. 7.531295	7.531914	7.532532	7.533149	7.533766	7.534381	7.534996	7.535610	7.536223	10	
28. 7.537446	7.538057	7.538666	7.539275	7.539883	7.540490	7.541096	7.541701	7.542306	0	48
29. 7.543512	7.544114	7.544715	7.545315	7.545915	7.546513	7.547111	7.547708	7.548304	50	
30. 7.549494	7.550088	7.550681	7.551273	7.551864	7.552455	7.553044	7.553633	7.554221	40	
31. 7.555395	7.555981	7.556566	7.557150	7.557733	7.558316	7.558897	7.559478	7.560059	30	
32. 7.561217	7.561795	7.562372	7.562948	7.563524	7.564099	7.564673	7.565246	7.565819	20	
33. 7.566962	7.567532	7.568101	7.568670	7.569238	7.569806	7.570372	7.570938	7.571503	10	
34. 7.572631	7.573194	7.573756	7.574318	7.574879	7.575439	7.575998	7.576557	7.577114	0	47
35. 7.578228	7.578784	7.579339	7.579893	7.580447	7.581000	7.581552	7.582103	7.582654	50	
36. 7.583754	7.584302	7.584850	7.585398	7.585944	7.586490	7.587035	7.587580	7.588124	40	
37. 7.589210	7.589751	7.590293	7.590833	7.591373	7.591912	7.592451	7.592988	7.593526	30	
38. 7.594598	7.595133	7.595668	7.596202	7.596735	7.597267	7.597799	7.598330	7.598861	20	
39. 7.599920	7.600449	7.600977	7.601504	7.602031	7.602557	7.603083	7.603608	7.604132	10	
40. 7.605178	7.605701	7.606222	7.606743	7.607264	7.607784	7.608303	7.608821	7.609339	0	46
41. 7.610373	7.610889	7.611405	7.611920	7.612434	7.612948	7.613461	7.613973	7.614485	50	
42. 7.615507	7.616017	7.616526	7.617035	7.617544	7.618051	7.618558	7.619065	7.619571	40	
43. 7.620581	7.621085	7.621588	7.622091	7.622594	7.623095	7.623597	7.624097	7.624597	30	
44. 7.625596	7.626094	7.626592	7.627089	7.627586	7.628082	7.628577	7.629072	7.629566	20	
45. 7.630553	7.631046	7.631538	7.632030	7.632521	7.633011	7.633501	7.633991	7.634479	10	
46. 7.635455	7.635942	7.636429	7.636915	7.637401	7.637886	7.638370	7.638854	7.639337	0	45
47. 7.640302	7.640784	7.641265	7.641746	7.642226	7.642706	7.643185	7.643664	7.644142	50	
48. 7.645096	7.645573	7.646049	7.646524	7.646999	7.647473	7.647947	7.648420	7.648893	40	
49. 7.649837	7.650309	7.650780	7.651250	7.651720	7.652189	7.652658	7.653126	7.653594	30	
50. 7.654528	7.654994	7.655460	7.655925	7.656390	7.656854	7.657317	7.657781	7.658244	20	
51. 7.659168	7.659629	7.660090	7.660550	7.661010	7.661469	7.661928	7.662386	7.662844	10	
52. 7.663759	7.664215	7.664671	7.665126	7.665581	7.666036	7.666490	7.666944	7.667397	0	44
53. 7.668301	7.668753	7.669204	7.669655	7.670105	7.670555	7.671005	7.671453	7.671902	50	
54. 7.672797	7.673244	7.673691	7.674137	7.674583	7.675028	7.675473	7.675917	7.676361	40	
55. 7.677247	7.677690	7.678132	7.678573	7.679014	7.679455	7.679895	7.680335	7.680775	30	
56. 7.681652	7.682090	7.682528	7.682965	7.683401	7.683838	7.684273	7.684709	7.685144	20	
57. 7.686012	7.686446	7.686879	7.687312	7.687744	7.688176	7.688608	7.689039	7.689470	10	
58. 7.690330	7.690759	7.691188	7.691616	7.692044	7.692472	7.692899	7.693326	7.693753	0	43
59. 7.694604	7.695029	7.695454	7.695878	7.696302	7.696726	7.697149	7.697572	7.697994	50	
60. 7.698837	7.699258	7.699679	7.700099	7.700519	7.700938	7.701357	7.701776	7.702194	40	
61. 7.703029	7.703446	7.703863	7.704279	7.704695	7.705110	7.705525	7.705940	7.706354	30	
62. 7.707181	7.707594	7.708007	7.708419	7.708831	7.709243	7.709654	7.710064	7.710475	20	
63. 7.711294	7.711703	7.712112	7.712520	7.712928	7.713336	7.713743	7.714150	7.714557	10	
64. 7.715368	7.715774	7.716179	7.716583	7.716987	7.717391	7.717795	7.718198	7.718600	0	42
65. 7.719405	7.719806	7.720207	7.720608	7.721009	7.721409	7.721808	7.722208	7.722607	50	
66. 7.723404	7.723802	7.724199	7.724596	7.724993	7.725390	7.725786	7.726181	7.726577	40	
67. 7.727366	7.727761	7.728155	7.728548	7.728941	7.729334	7.729727	7.730119	7.730511	30	
68. 7.731293	7.731684	7.732074	7.732464	7.732854	7.733243	7.733632	7.734021	7.734409	20	
69. 7.735185	7.735572	7.735959	7.736346	7.736732	7.737118	7.737503	7.737888	7.738273	10	
70. 7.739042	7.739426	7.739809	7.740192	7.740575	7.740958	7.741340	7.741722	7.742103	0	41
71. 7.742865	7.743245	7.743626	7.744005	7.744385	7.744764	7.745143	7.745521	7.745899	50	
72. 7.746655	7.747032	7.747409	7.747785	7.748161	7.748537	7.748913	7.749288	7.749663	40	
73. 7.750412	7.750786	7.751159	7.751533	7.751905	7.752278	7.752650	7.753022	7.753394	30	
74. 7.754136	7.754507	7.754878	7.755248	7.755617	7.755987	7.756356	7.756725	7.757093	20	
75. 7.757830	7.758197	7.758564	7.758931	7.759298	7.759664	7.760030	7.760396	7.760762	10	
76. 7.761492	7.761856	7.762220	7.762584	7.762948	7.763311	7.763674	7.764037	7.764399	0	40
9"	8"	7"	6"	5"	4"	3"	2"	1"	Seconds	Minutes
Co-tangent of 89 degrees, or Tangent of 179 degrees.									Seconds	Minutes

LOGARITHMIC TANGENTS.

Tangent of 0 degree, or Co-tangent of 90 degrees.													
Minutes Seconds		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	Seconds	
20	0	7.764761	7.765123	7.765484	7.765845	7.766206	7.766567	7.766927	7.767287	7.767647	7.768006	50	
	10	7.768365	7.768724	7.769083	7.769441	7.769799	7.770156	7.770514	7.770871	7.771227	7.771584	40	
	20	7.771940	7.772296	7.772651	7.773006	7.773361	7.773716	7.774071	7.774425	7.774778	7.775132	30	
	30	7.775485	7.775838	7.776191	7.776543	7.776895	7.777247	7.777599	7.777950	7.778301	7.778651	20	
	40	7.779002	7.779352	7.779702	7.780051	7.780401	7.780750	7.781098	7.781447	7.781795	7.782143	10	
50	7.782490	7.782838	7.783185	7.783531	7.783878	7.784224	7.784570	7.784916	7.785261	7.785606	0		
21	0	7.785951	7.786295	7.786640	7.786984	7.787327	7.787671	7.788014	7.788357	7.788700	7.789041	50	
	10	7.789384	7.789726	7.790068	7.790409	7.790750	7.791091	7.791431	7.791771	7.792111	7.792451	40	
	20	7.792790	7.793130	7.793469	7.793807	7.794146	7.794484	7.794822	7.795159	7.795496	7.795833	30	
	30	7.796170	7.796507	7.796843	7.797179	7.797515	7.797850	7.798186	7.798521	7.798855	7.799190	20	
	40	7.799524	7.799858	7.800192	7.800525	7.800858	7.801191	7.801524	7.801856	7.802188	7.802520	10	
50	7.802852	7.803183	7.803515	7.803846	7.804176	7.804507	7.804837	7.805167	7.805496	7.805826	0		
22	0	7.806155	7.806484	7.806812	7.807141	7.807469	7.807797	7.808124	7.808452	7.808779	7.809106	50	
	10	7.809433	7.809759	7.810085	7.810411	7.810737	7.811062	7.811387	7.811712	7.812037	7.812362	40	
	20	7.812686	7.813010	7.813334	7.813657	7.813980	7.814303	7.814626	7.814949	7.815271	7.815593	30	
	30	7.815915	7.816236	7.816558	7.816879	7.817200	7.817520	7.817841	7.818161	7.818481	7.818801	20	
	40	7.819120	7.819439	7.819758	7.820077	7.820396	7.820714	7.821032	7.821350	7.821667	7.821985	10	
50	7.822302	7.822619	7.822935	7.823252	7.823568	7.823884	7.824200	7.824515	7.824831	7.825146	0		
23	0	7.825460	7.825775	7.826089	7.826404	7.826718	7.827031	7.827345	7.827658	7.827971	7.828284	50	
	10	7.828596	7.828909	7.829221	7.829533	7.829844	7.830156	7.830467	7.830778	7.831089	7.831399	40	
	20	7.831710	7.832020	7.832330	7.832639	7.832949	7.833258	7.833567	7.833876	7.834184	7.834493	30	
	30	7.834801	7.835109	7.835416	7.835724	7.836031	7.836338	7.836645	7.836952	7.837258	7.837564	20	
	40	7.837870	7.838176	7.838481	7.838787	7.839092	7.839397	7.839701	7.840006	7.840310	7.840614	10	
50	7.840918	7.841222	7.841525	7.841828	7.842131	7.842434	7.842736	7.843039	7.843341	7.843643	0		
24	0	7.843944	7.844246	7.844547	7.844848	7.845149	7.845450	7.845750	7.846051	7.846351	7.846650	50	
	10	7.846950	7.847249	7.847549	7.847848	7.848147	7.848445	7.848744	7.849042	7.849340	7.849637	40	
	20	7.849935	7.850232	7.850530	7.850827	7.851123	7.851420	7.851716	7.852012	7.852308	7.852604	30	
	30	7.852900	7.853195	7.853490	7.853785	7.854080	7.854374	7.854669	7.854963	7.855257	7.855551	20	
	40	7.855844	7.856137	7.856431	7.856724	7.857016	7.857309	7.857601	7.857893	7.858185	7.858477	10	
50	7.858769	7.859060	7.859351	7.859642	7.859933	7.860224	7.860514	7.860804	7.861094	7.861384	0		
25	0	7.861674	7.861963	7.862253	7.862542	7.862830	7.863119	7.863408	7.863696	7.863984	7.864272	50	
	10	7.864565	7.864847	7.865134	7.865422	7.865709	7.865995	7.866282	7.866568	7.866855	7.867141	40	
	20	7.867426	7.867712	7.867997	7.868283	7.868568	7.868853	7.869137	7.869422	7.869706	7.869990	30	
	30	7.870274	7.870558	7.870842	7.871125	7.871408	7.871691	7.871974	7.872257	7.872539	7.872822	20	
	40	7.873104	7.873386	7.873667	7.873949	7.874230	7.874512	7.874793	7.875073	7.875354	7.875634	10	
50	7.875915	7.876195	7.876475	7.876755	7.877034	7.877314	7.877593	7.877872	7.878151	7.878429	0		
26	0	7.878708	7.878986	7.879264	7.879542	7.879820	7.880098	7.880375	7.880652	7.880929	7.881206	50	
	10	7.881483	7.881759	7.882036	7.882312	7.882588	7.882864	7.883140	7.883415	7.883690	7.883966	40	
	20	7.884240	7.884515	7.884790	7.885064	7.885339	7.885613	7.885887	7.886160	7.886434	7.886707	30	
	30	7.886981	7.887254	7.887527	7.887799	7.888072	7.888344	7.888616	7.888889	7.889160	7.889432	20	
	40	7.889704	7.889975	7.890246	7.890517	7.890788	7.891059	7.891329	7.891600	7.891870	7.892140	10	
50	7.892410	7.892679	7.892949	7.893218	7.893487	7.893756	7.894025	7.894294	7.894562	7.894831	0		
27	0	7.895099	7.895367	7.895635	7.895902	7.896170	7.896437	7.896704	7.896971	7.897238	7.897505	50	
	10	7.897772	7.898038	7.898304	7.898570	7.898836	7.899102	7.899367	7.899633	7.899898	7.900163	40	
	20	7.900428	7.900693	7.900957	7.901222	7.901486	7.901750	7.902014	7.902278	7.902541	7.902805	30	
	30	7.903068	7.903331	7.903594	7.903857	7.904120	7.904382	7.904645	7.904907	7.905169	7.905431	20	
	40	7.905692	7.905954	7.906215	7.906477	7.906738	7.906999	7.907259	7.907520	7.907780	7.908041	10	
50	7.908301	7.908561	7.908821	7.909080	7.909340	7.909599	7.909858	7.910118	7.910376	7.910635	0		
28	0	7.910894	7.911152	7.911411	7.911669	7.911927	7.912184	7.912442	7.912700	7.912957	7.913214	50	
	10	7.913471	7.913728	7.913985	7.914242	7.914498	7.914754	7.915011	7.915267	7.915522	7.915778	40	
	20	7.916034	7.916289	7.916544	7.916799	7.917054	7.917309	7.917564	7.917818	7.918073	7.918327	30	
	30	7.918581	7.918835	7.919089	7.919342	7.919596	7.919849	7.920102	7.920355	7.920608	7.920861	20	
	40	7.921113	7.921366	7.921618	7.921870	7.922122	7.922374	7.922626	7.922877	7.923129	7.923380	10	
50	7.923631	7.923882	7.924133	7.924384	7.924634	7.924885	7.925135	7.925385	7.925635	7.925885	0		
29	0	7.926134	7.926384	7.926633	7.926883	7.927132	7.927381	7.927630	7.927878	7.928127	7.928375	50	
	10	7.928623	7.928871	7.929119	7.929367	7.929615	7.929863	7.930110	7.930357	7.930604	7.930851	40	
	20	7.931098	7.931345	7.931591	7.931838	7.932084	7.932330	7.932576	7.932822	7.933068	7.933313	30	
	30	7.933559	7.933804	7.934049	7.934294	7.934539	7.934784	7.935029	7.935273	7.935517	7.935762	20	
	40	7.936006	7.936250	7.936493	7.936737	7.936981	7.937224	7.937467	7.937710	7.937953	7.938196	10	
50	7.938439	7.938681	7.938924	7.939166	7.939408	7.939650	7.939892	7.940134	7.940376	7.940617	0		
Minutes Seconds		10"	9"	8"	7"	6"	5"	4"	3"	2"	1"		
Co-tangent of 89 degrees, or Tangent of 179 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 0 degree, or Co-tangent of 90 degrees.										Seconds	Minutes
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°		
7.940858	7.941100	7.941341	7.941582	7.941823	7.942063	7.942304	7.942544	7.942784	7.943025	50	
7.943265	7.943505	7.943744	7.943984	7.944223	7.944463	7.944702	7.944941	7.945180	7.945419	40	
7.945658	7.945896	7.946135	7.946373	7.946611	7.946849	7.947087	7.947325	7.947562	7.947800	30	
7.948037	7.948275	7.948512	7.948749	7.948986	7.949222	7.949459	7.949696	7.949932	7.950168	20	
7.950404	7.950640	7.950876	7.951112	7.951347	7.951583	7.951818	7.952053	7.952289	7.952523	10	
7.952758	7.952993	7.953228	7.953462	7.953696	7.953931	7.954165	7.954399	7.954632	7.954866	0	29
7.955100	7.955333	7.955566	7.955800	7.956033	7.956266	7.956498	7.956731	7.956964	7.957196	50	
7.957428	7.957661	7.957893	7.958125	7.958356	7.958588	7.958820	7.959051	7.959283	7.959514	40	
7.959745	7.959976	7.960207	7.960437	7.960668	7.960898	7.961129	7.961359	7.961589	7.961819	30	
7.962049	7.962279	7.962508	7.962738	7.962967	7.963196	7.963425	7.963654	7.963883	7.964112	20	
7.964341	7.964569	7.964798	7.965026	7.965254	7.965482	7.965710	7.965938	7.966166	7.966393	10	
7.966621	7.966848	7.967075	7.967302	7.967529	7.967756	7.967983	7.968210	7.968436	7.968662	0	28
7.968889	7.969115	7.969341	7.969567	7.969793	7.970018	7.970244	7.970469	7.970695	7.970920	50	
7.971145	7.971370	7.971595	7.971819	7.972044	7.972269	7.972493	7.972717	7.972941	7.973166	40	
7.973389	7.973613	7.973837	7.974061	7.974284	7.974507	7.974731	7.974954	7.975177	7.975400	30	
7.975622	7.975845	7.976068	7.976290	7.976512	7.976735	7.976957	7.977179	7.977401	7.977622	20	
7.977844	7.978066	7.978287	7.978508	7.978730	7.978951	7.979172	7.979392	7.979613	7.979834	10	
7.980054	7.980275	7.980495	7.980715	7.980935	7.981155	7.981375	7.981595	7.981815	7.982034	0	27
7.982253	7.982473	7.982692	7.982911	7.983130	7.983349	7.983568	7.983786	7.984005	7.984223	50	
7.984441	7.984660	7.984878	7.985096	7.985314	7.985531	7.985749	7.985967	7.986184	7.986401	40	
7.986619	7.986836	7.987053	7.987270	7.987486	7.987703	7.987920	7.988136	7.988352	7.988569	30	
7.988785	7.989001	7.989217	7.989432	7.989648	7.989864	7.990079	7.990295	7.990510	7.990725	20	
7.990940	7.991155	7.991370	7.991585	7.991799	7.992014	7.992228	7.992443	7.992657	7.992871	10	
7.993085	7.993299	7.993513	7.993726	7.993940	7.994153	7.994367	7.994580	7.994793	7.995006	0	26
7.995219	7.995432	7.995645	7.995857	7.996070	7.996282	7.996495	7.996707	7.996919	7.997131	50	
7.997343	7.997555	7.997767	7.997978	7.998190	7.998401	7.998612	7.998824	7.999035	7.999246	40	
7.999457	7.999667	7.999878	8.000089	8.000299	8.000509	8.000720	8.000930	8.001140	8.001350	30	
8.001560	8.001770	8.001979	8.002189	8.002398	8.002608	8.002817	8.003026	8.003235	8.003444	20	
8.003653	8.003862	8.004070	8.004279	8.004487	8.004696	8.004904	8.005112	8.005320	8.005528	10	
8.005736	8.005944	8.006151	8.006359	8.006567	8.006774	8.006981	8.007188	8.007395	8.007602	0	25
8.007809	8.008016	8.008223	8.008429	8.008636	8.008842	8.009048	8.009255	8.009461	8.009667	50	
8.009873	8.010078	8.010284	8.010490	8.010695	8.010901	8.011106	8.011311	8.011516	8.011721	40	
8.011926	8.012131	8.012336	8.012540	8.012745	8.012949	8.013154	8.013358	8.013562	8.013766	30	
8.013970	8.014174	8.014378	8.014581	8.014785	8.014988	8.015192	8.015395	8.015598	8.015801	20	
8.016004	8.016207	8.016410	8.016613	8.016815	8.017018	8.017220	8.017423	8.017625	8.017827	10	
8.018029	8.018231	8.018433	8.018635	8.018836	8.019038	8.019239	8.019441	8.019642	8.019843	0	24
8.020045	8.020246	8.020447	8.020648	8.020848	8.021049	8.021249	8.021450	8.021650	8.021850	50	
8.022051	8.022251	8.022451	8.022651	8.022851	8.023050	8.023250	8.023449	8.023649	8.023848	40	
8.024048	8.024247	8.024446	8.024645	8.024844	8.025043	8.025241	8.025440	8.025639	8.025837	30	
8.026035	8.026234	8.026432	8.026630	8.026828	8.027026	8.027224	8.027421	8.027619	8.027817	20	
8.028014	8.028211	8.028409	8.028606	8.028803	8.029000	8.029197	8.029394	8.029591	8.029787	10	
8.029984	8.030180	8.030377	8.030573	8.030769	8.030965	8.031161	8.031357	8.031553	8.031749	0	23
8.031945	8.032140	8.032336	8.032531	8.032727	8.032922	8.033117	8.033312	8.033507	8.033702	50	
8.033897	8.034091	8.034286	8.034481	8.034675	8.034869	8.035064	8.035258	8.035452	8.035646	40	
8.035840	8.036034	8.036228	8.036421	8.036615	8.036808	8.037002	8.037195	8.037388	8.037582	30	
8.037775	8.037968	8.038161	8.038353	8.038546	8.038739	8.038931	8.039124	8.039316	8.039509	20	
8.039701	8.039893	8.040085	8.040277	8.040469	8.040661	8.040852	8.041044	8.041235	8.041427	10	
8.041618	8.041810	8.042001	8.042192	8.042383	8.042574	8.042765	8.042956	8.043146	8.043337	0	22
8.043527	8.043718	8.043908	8.044099	8.044289	8.044479	8.044669	8.044859	8.045049	8.045239	50	
8.045428	8.045618	8.045807	8.045997	8.046186	8.046376	8.046565	8.046754	8.046943	8.047132	40	
8.047321	8.047510	8.047698	8.047887	8.048075	8.048264	8.048452	8.048641	8.048829	8.049017	30	
8.049205	8.049393	8.049581	8.049769	8.049956	8.050144	8.050332	8.050519	8.050707	8.050894	20	
8.051081	8.051268	8.051455	8.051642	8.051829	8.052016	8.052203	8.052390	8.052576	8.052763	10	
8.052949	8.053136	8.053322	8.053508	8.053694	8.053880	8.054066	8.054252	8.054438	8.054624	0	21
8.054809	8.054995	8.055180	8.055366	8.055551	8.055736	8.055922	8.056107	8.056292	8.056477	50	
8.056662	8.056846	8.057031	8.057216	8.057400	8.057585	8.057769	8.057953	8.058138	8.058322	40	
8.058506	8.058690	8.058874	8.059058	8.059241	8.059425	8.059609	8.059792	8.059976	8.060159	30	
8.060342	8.060526	8.060709	8.060892	8.061075	8.061258	8.061441	8.061623	8.061806	8.061989	20	
8.062171	8.062354	8.062536	8.062718	8.062901	8.063083	8.063265	8.063447	8.063629	8.063810	10	
8.063992	8.064174	8.064356	8.064537	8.064719	8.064900	8.065081	8.065263	8.065444	8.065625	0	20
10°	9°	8°	7°	6°	5°	4°	3°	2°	1°	Seconds	Minutes
Co-tangent of 89 degrees, or Tangent of 179 degrees.											

LOGARITHMIC TANGENTS.

		Tangent of 0 degree, or Co-tangent of 90 degrees.									
Minutes	Seconds	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"
		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"
40	0	8.065806	8.065987	8.066168	8.066348	8.066529	8.066710	8.066890	8.067071	8.067251	8.067432
10	8.067612	8.067792	8.067972	8.068152	8.068332	8.068512	8.068692	8.068871	8.069051	8.069231	8.069411
20	8.069590	8.069769	8.069948	8.070128	8.070307	8.070486	8.070665	8.070844	8.071023	8.071202	8.071381
30	8.071561	8.071739	8.071917	8.072095	8.072272	8.072450	8.072627	8.072804	8.072981	8.073158	8.073335
40	8.073512	8.073689	8.073865	8.074041	8.074217	8.074392	8.074567	8.074742	8.074917	8.075091	8.075266
50	8.075440	8.075614	8.075788	8.075961	8.076134	8.076307	8.076479	8.076651	8.076823	8.076994	8.077166
41	0	8.077337	8.077509	8.077680	8.077851	8.078021	8.078191	8.078361	8.078530	8.078700	8.078869
10	8.079038	8.079206	8.079374	8.079541	8.079708	8.079874	8.080040	8.080206	8.080371	8.080536	8.080701
20	8.080865	8.081029	8.081192	8.081355	8.081518	8.081680	8.081842	8.082004	8.082165	8.082326	8.082487
30	8.082647	8.082807	8.082967	8.083126	8.083285	8.083444	8.083602	8.083760	8.083918	8.084076	8.084233
40	8.084390	8.084547	8.084703	8.084859	8.085014	8.085169	8.085323	8.085477	8.085631	8.085784	8.085937
50	8.086090	8.086242	8.086394	8.086546	8.086697	8.086848	8.086998	8.087148	8.087298	8.087447	8.087596
42	0	8.087745	8.087894	8.088042	8.088190	8.088337	8.088484	8.088630	8.088776	8.088921	8.089066
10	8.089211	8.089356	8.089500	8.089644	8.089787	8.089930	8.090072	8.090214	8.090356	8.090497	8.090638
20	8.090779	8.090919	8.091058	8.091197	8.091335	8.091473	8.091610	8.091747	8.091884	8.092020	8.092156
30	8.092291	8.092426	8.092561	8.092695	8.092829	8.092962	8.093095	8.093228	8.093360	8.093492	8.093624
40	8.093755	8.093886	8.094017	8.094147	8.094277	8.094406	8.094535	8.094664	8.094792	8.094920	8.095048
50	8.095175	8.095302	8.095429	8.095555	8.095681	8.095806	8.095931	8.096056	8.096180	8.096304	8.096428
43	0	8.096551	8.096674	8.096796	8.096918	8.097039	8.097160	8.097280	8.097399	8.097518	8.097637
10	8.097755	8.097873	8.097990	8.098107	8.098223	8.098339	8.098454	8.098569	8.098683	8.098797	8.098910
20	8.099023	8.099136	8.099248	8.099360	8.099471	8.099582	8.099692	8.099802	8.099911	8.100020	8.100129
30	8.100237	8.100345	8.100452	8.100559	8.100665	8.100771	8.100876	8.100981	8.101085	8.101189	8.101293
40	8.101396	8.101499	8.101601	8.101703	8.101805	8.101906	8.102007	8.102108	8.102208	8.102308	8.102408
50	8.102508	8.102607	8.102706	8.102805	8.102903	8.103001	8.103099	8.103196	8.103293	8.103390	8.103487
44	0	8.103583	8.103679	8.103775	8.103870	8.103965	8.104060	8.104154	8.104248	8.104342	8.104436
10	8.104529	8.104622	8.104715	8.104808	8.104899	8.104991	8.105082	8.105173	8.105264	8.105354	8.105444
20	8.105534	8.105623	8.105712	8.105801	8.105889	8.105977	8.106065	8.106152	8.106239	8.106326	8.106412
30	8.106498	8.106584	8.106669	8.106754	8.106838	8.106922	8.107006	8.107089	8.107172	8.107255	8.107337
40	8.107419	8.107501	8.107582	8.107663	8.107744	8.107824	8.107904	8.107984	8.108063	8.108142	8.108221
50	8.108300	8.108378	8.108456	8.108533	8.108610	8.108687	8.108763	8.108839	8.108915	8.108990	8.109066
45	0	8.109141	8.109215	8.109288	8.109361	8.109433	8.109505	8.109576	8.109647	8.109718	8.109788
10	8.109858	8.109928	8.110000	8.110069	8.110138	8.110206	8.110274	8.110342	8.110409	8.110476	8.110543
20	8.110609	8.110675	8.110741	8.110806	8.110871	8.110935	8.110999	8.111062	8.111125	8.111188	8.111250
30	8.111312	8.111374	8.111435	8.111496	8.111556	8.111616	8.111675	8.111734	8.111793	8.111852	8.111910
40	8.111968	8.112026	8.112084	8.112141	8.112198	8.112255	8.112312	8.112368	8.112424	8.112480	8.112536
50	8.112591	8.112646	8.112701	8.112756	8.112811	8.112865	8.112919	8.112973	8.113027	8.113081	8.113134
46	0	8.113187	8.113240	8.113292	8.113344	8.113396	8.113447	8.113498	8.113549	8.113600	8.113651
10	8.113701	8.113751	8.113801	8.113851	8.113901	8.113951	8.114000	8.114049	8.114098	8.114147	8.114195
20	8.114244	8.114292	8.114340	8.114388	8.114435	8.114482	8.114529	8.114576	8.114622	8.114668	8.114714
30	8.114760	8.114806	8.114851	8.114896	8.114941	8.114986	8.115030	8.115074	8.115118	8.115162	8.115206
40	8.115250	8.115293	8.115336	8.115379	8.115422	8.115464	8.115507	8.115549	8.115591	8.115633	8.115675
50	8.115717	8.115758	8.115799	8.115840	8.115881	8.115921	8.115961	8.116001	8.116041	8.116081	8.116121
47	0	8.116161	8.116200	8.116239	8.116278	8.116316	8.116354	8.116392	8.116430	8.116467	8.116505
10	8.116542	8.116579	8.116616	8.116653	8.116689	8.116725	8.116761	8.116797	8.116832	8.116868	8.116903
20	8.116938	8.116973	8.117008	8.117043	8.117077	8.117111	8.117145	8.117179	8.117213	8.117246	8.117280
30	8.117313	8.117346	8.117379	8.117412	8.117444	8.117476	8.117508	8.117540	8.117571	8.117603	8.117634
40	8.117665	8.117696	8.117727	8.117758	8.117788	8.117818	8.117848	8.117878	8.117907	8.117937	8.117966
50	8.117995	8.118024	8.118053	8.118082	8.118111	8.118140	8.118168	8.118196	8.118224	8.118252	8.118280
48	0	8.118308	8.118335	8.118362	8.118389	8.118415	8.118441	8.118467	8.118492	8.118517	8.118542
10	8.118567	8.118591	8.118616	8.118640	8.118664	8.118688	8.118712	8.118735	8.118758	8.118781	8.118804
20	8.118827	8.118850	8.118872	8.118894	8.118916	8.118938	8.118959	8.118980	8.119001	8.119022	8.119043
30	8.119063	8.119084	8.119104	8.119124	8.119144	8.119164	8.119183	8.119202	8.119221	8.119240	8.119259
40	8.119278	8.119296	8.119314	8.119332	8.119350	8.119368	8.119385	8.119402	8.119419	8.119436	8.119453
50	8.119470	8.119486	8.119502	8.119518	8.119533	8.119548	8.119563	8.119578	8.119592	8.119607	8.119621
49	0	8.119636	8.119650	8.119664	8.119678	8.119691	8.119705	8.119718	8.119731	8.119744	8.119757
10	8.119770	8.119782	8.119794	8.119806	8.119818	8.119829	8.119841	8.119852	8.119863	8.119874	8.119885
20	8.119895	8.119906	8.119916	8.119926	8.119936	8.119946	8.119956	8.119966	8.119975	8.119985	8.119994
30	8.120003	8.120012	8.120021	8.120030	8.120039	8.120047	8.120056	8.120064	8.120072	8.120080	8.120088
40	8.120096	8.120103	8.120111	8.120118	8.120125	8.120132	8.120139	8.120145	8.120152	8.120158	8.120164
50	8.120170	8.120176	8.120182	8.120187	8.120192	8.120197	8.120202	8.120207	8.120212	8.120217	8.120221
50	0	8.120226	8.120230	8.120234	8.120238	8.120242	8.120245	8.120248	8.120251	8.120254	8.120257
10	8.120260	8.120263	8.120266	8.120269	8.120271	8.120274	8.120276	8.120278	8.120280	8.120282	8.120284
20	8.120286	8.120288	8.120290	8.120292	8.120294	8.120296	8.120297	8.120299	8.120300	8.120301	8.120302
30	8.120303	8.120304	8.120305	8.120306	8.120307	8.120308	8.120309	8.120310	8.120311	8.120311	8.120312
40	8.120312	8.120312	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313
50	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313	8.120313

Co-tangent of 89 degrees, or Tangent of 179 degrees.

	1'	2'	3'	4'	5'	6'	7'	8'	9'	Sec	Min
1727	8.162872	8.163016	8.163161	8.163306	8.163450	8.163595	8.163739	8.163884	8.164028	50	
1728	8.164317	8.164461	8.164605	8.164749	8.164893	8.165037	8.165181	8.165325	8.165469	40	
1613	8.165757	8.165900	8.166044	8.166188	8.166331	8.166475	8.166619	8.166762	8.166905	30	
1049	8.167192	8.167335	8.167479	8.167622	8.167765	8.167908	8.168051	8.168194	8.168337	20	
1480	8.168623	8.168766	8.168908	8.169051	8.169194	8.169336	8.169479	8.169621	8.169764	10	
1906	8.170049	8.170191	8.170333	8.170476	8.170618	8.170760	8.170902	8.171044	8.171186	0	9
328	8.171470	8.171612	8.171754	8.171896	8.172037	8.172179	8.172321	8.172462	8.172604	50	
745	8.172887	8.173028	8.173170	8.173311	8.173452	8.173593	8.173735	8.173876	8.174017	40	
1158	8.174399	8.174440	8.174581	8.174722	8.174862	8.175003	8.175144	8.175285	8.175425	30	
566	8.175706	8.175847	8.175987	8.176128	8.176268	8.176408	8.176549	8.176689	8.176829	20	
960	8.177109	8.177249	8.177389	8.177529	8.177669	8.177809	8.177949	8.178089	8.178229	10	
368	8.178508	8.178647	8.178787	8.178927	8.179066	8.179205	8.179345	8.179484	8.179623	0	8
1763	8.179902	8.180041	8.180180	8.180319	8.180458	8.180597	8.180736	8.180875	8.181014	50	
153	8.181291	8.181430	8.181569	8.181707	8.181846	8.181984	8.182123	8.182261	8.182400	40	
538	8.182676	8.182815	8.182953	8.183091	8.183229	8.183367	8.183505	8.183643	8.183781	30	
919	8.184057	8.184195	8.184333	8.184470	8.184608	8.184746	8.184883	8.185021	8.185158	20	
296	8.185433	8.185571	8.185708	8.185845	8.185983	8.186120	8.186257	8.186394	8.186531	10	
668	8.186805	8.186942	8.187079	8.187216	8.187353	8.187490	8.187626	8.187763	8.187900	0	7
1036	8.188173	8.188310	8.188446	8.188582	8.188719	8.188855	8.188992	8.189128	8.189264	50	
1400	8.189363	8.189497	8.189630	8.189763	8.189895	8.190028	8.190160	8.190292	8.190424	40	
1760	8.190595	8.190727	8.190859	8.190991	8.191122	8.191253	8.191384	8.191515	8.191646	30	
1115	8.192250	8.192386	8.192521	8.192656	8.192791	8.192926	8.193061	8.193196	8.193331	20	
1466	8.193601	8.193736	8.193871	8.194005	8.194139	8.194273	8.194407	8.194541	8.194675	10	
813	8.194947	8.195082	8.195216	8.195351	8.195485	8.195619	8.195753	8.195887	8.196021	0	6
1156	8.196290	8.196424	8.196558	8.196692	8.196825	8.196959	8.197093	8.197227	8.197361	50	
494	8.197628	8.197761	8.197895	8.198028	8.198162	8.198295	8.198428	8.198562	8.198695	40	
829	8.198962	8.199095	8.199228	8.199361	8.199494	8.199627	8.199760	8.199893	8.200026	30	
1159	8.200322	8.200455	8.200588	8.200721	8.200853	8.200985	8.201118	8.201250	8.201383	20	
485	8.201618	8.201750	8.201882	8.202015	8.202147	8.202279	8.202411	8.202544	8.202676	10	
808	8.202940	8.203072	8.203204	8.203335	8.203467	8.203599	8.203731	8.203863	8.203994	0	5
126	8.204258	8.204389	8.204521	8.204652	8.204784	8.204915	8.205046	8.205178	8.205309	50	
440	8.205571	8.205703	8.205834	8.205965	8.206096	8.206227	8.206358	8.206489	8.206620	40	
751	8.206881	8.207012	8.207143	8.207274	8.207404	8.207535	8.207666	8.207796	8.207926	30	
1057	8.208187	8.208318	8.208448	8.208578	8.208709	8.208839	8.208969	8.209099	8.209229	20	
359	8.209489	8.209619	8.209749	8.209879	8.210009	8.210139	8.210269	8.210399	8.210528	10	
658	8.210788	8.210917	8.211047	8.211176	8.211306	8.211435	8.211565	8.211694	8.211823	0	4
953	8.212028	8.212151	8.212274	8.212397	8.212519	8.212642	8.212764	8.212886	8.213008	50	
243	8.213272	8.213395	8.213518	8.213640	8.213762	8.213884	8.214006	8.214128	8.214250	40	
530	8.214509	8.214631	8.214753	8.214875	8.214997	8.215119	8.215241	8.215363	8.215485	30	
814	8.215942	8.216064	8.216186	8.216308	8.216430	8.216552	8.216674	8.216796	8.216918	20	
993	8.217221	8.217343	8.217465	8.217587	8.217709	8.217831	8.217953	8.218075	8.218197	10	
369	8.218496	8.218618	8.218740	8.218862	8.218984	8.219106	8.219228	8.219350	8.219472	0	3
641	8.219768	8.219890	8.220012	8.220134	8.220256	8.220378	8.220500	8.220622	8.220744	50	
909	8.221036	8.221158	8.221280	8.221402	8.221524	8.221646	8.221768	8.221890	8.222012	40	
174	8.222306	8.222428	8.222550	8.222672	8.222794	8.222916	8.223038	8.223160	8.223282	30	
435	8.223560	8.223682	8.223804	8.223926	8.224048	8.224170	8.224292	8.224414	8.224536	20	
692	8.224817	8.224939	8.225061	8.225183	8.225305	8.225427	8.225549	8.225671	8.225793	10	
945	8.226071	8.226193	8.226315	8.226437	8.226559	8.226681	8.226803	8.226925	8.227047	0	2
195	8.227230	8.227352	8.227474	8.227596	8.227718	8.227840	8.227962	8.228084	8.228206	50	
442	8.228566	8.228688	8.228810	8.228932	8.229054	8.229176	8.229298	8.229420	8.229542	40	
685	8.229808	8.229930	8.230052	8.230174	8.230296	8.230418	8.230540	8.230662	8.230784	30	
924	8.231048	8.231170	8.231292	8.231414	8.231536	8.231658	8.231780	8.231902	8.232024	20	
160	8.232283	8.232405	8.232527	8.232649	8.232771	8.232893	8.233015	8.233137	8.233259	10	
392	8.233515	8.233637	8.233759	8.233881	8.234003	8.234125	8.234247	8.234369	8.234491	0	1
621	8.234744	8.234866	8.234988	8.235110	8.235232	8.235354	8.235476	8.235598	8.235720	50	
846	8.235968	8.236090	8.236212	8.236334	8.236456	8.236578	8.236700	8.236822	8.236944	40	
968	8.237190	8.237312	8.237434	8.237556	8.237678	8.237800	8.237922	8.238044	8.238166	30	
287	8.238408	8.238530	8.238652	8.238774	8.238896	8.239018	8.239140	8.239262	8.239384	20	
502	8.239623	8.239745	8.239867	8.239989	8.240111	8.240233	8.240355	8.240477	8.240599	10	
713	8.240834	8.240956	8.241078	8.241200	8.241322	8.241444	8.241566	8.241688	8.241810	0	0
	9'	8'	7'	6'	5'	4'	3'	2'	1'		
Co-tangent of 89 degrees, or Tangent of 179 degrees.											
										Seconds	Minutes

LOGARITHMIC TANGENTS.

Tangent of 1 degree, or Co-tangent of 91 degrees.										Seconds	Minutes
0'	1'	2'	3'	4'	5'	6'	7'	8'	9'		
8.308884	8.308988	8.309091	8.309194	8.309298	8.309401	8.309504	8.309608	8.309711	8.309814	50	
8.309917	8.310021	8.310124	8.310227	8.310330	8.310433	8.310536	8.310639	8.310742	8.310845	40	
8.310948	8.311051	8.311154	8.311257	8.311360	8.311462	8.311565	8.311668	8.311771	8.311873	30	
8.311976	8.312079	8.312182	8.312284	8.312387	8.312489	8.312592	8.312694	8.312797	8.312899	20	
8.313002	8.313104	8.313207	8.313309	8.313412	8.313514	8.313616	8.313719	8.313821	8.313923	10	
8.314025	8.314128	8.314230	8.314332	8.314434	8.314536	8.314638	8.314740	8.314842	8.314944	0	49
8.315046	8.315148	8.315250	8.315352	8.315454	8.315556	8.315658	8.315760	8.315861	8.315963	50	
8.316065	8.316166	8.316268	8.316370	8.316472	8.316573	8.316675	8.316776	8.316878	8.316980	40	
8.317081	8.317183	8.317284	8.317385	8.317487	8.317588	8.317690	8.317791	8.317892	8.317994	30	
8.318095	8.318196	8.318297	8.318398	8.318500	8.318601	8.318702	8.318803	8.318904	8.319005	20	
8.319106	8.319207	8.319308	8.319409	8.319510	8.319611	8.319712	8.319813	8.319914	8.320015	10	
8.320115	8.320216	8.320317	8.320418	8.320518	8.320619	8.320720	8.320820	8.320921	8.321022	0	48
8.321123	8.321223	8.321323	8.321424	8.321524	8.321625	8.321725	8.321826	8.321926	8.322026	50	
8.322127	8.322227	8.322327	8.322427	8.322528	8.322628	8.322728	8.322828	8.322929	8.323029	40	
8.323129	8.323229	8.323329	8.323429	8.323529	8.323629	8.323729	8.323829	8.323929	8.324029	30	
8.324129	8.324228	8.324328	8.324428	8.324528	8.324628	8.324727	8.324827	8.324927	8.325026	20	
8.325126	8.325226	8.325325	8.325425	8.325524	8.325624	8.325724	8.325823	8.325922	8.326022	10	
8.326121	8.326221	8.326320	8.326419	8.326519	8.326618	8.326717	8.326817	8.326916	8.327015	0	47
8.327114	8.327213	8.327313	8.327412	8.327511	8.327610	8.327709	8.327808	8.327907	8.328006	50	
8.328105	8.328204	8.328303	8.328402	8.328501	8.328600	8.328698	8.328797	8.328896	8.328995	40	
8.329093	8.329192	8.329291	8.329390	8.329488	8.329587	8.329685	8.329784	8.329883	8.329981	30	
8.330080	8.330178	8.330277	8.330375	8.330474	8.330572	8.330670	8.330769	8.330867	8.330965	20	
8.331064	8.331162	8.331260	8.331358	8.331457	8.331555	8.331653	8.331751	8.331849	8.331947	10	
8.332045	8.332143	8.332242	8.332340	8.332438	8.332535	8.332633	8.332731	8.332829	8.332927	0	46
8.333025	8.333123	8.333221	8.333318	8.333416	8.333514	8.333612	8.333709	8.333807	8.333905	50	
8.334003	8.334100	8.334198	8.334295	8.334393	8.334490	8.334588	8.334685	8.334783	8.334880	40	
8.334977	8.335075	8.335172	8.335270	8.335367	8.335464	8.335562	8.335659	8.335756	8.335853	30	
8.335950	8.336048	8.336145	8.336242	8.336339	8.336436	8.336533	8.336630	8.336727	8.336824	20	
8.336921	8.337018	8.337115	8.337212	8.337309	8.337406	8.337503	8.337599	8.337696	8.337793	10	
8.337890	8.337987	8.338083	8.338180	8.338277	8.338373	8.338470	8.338567	8.338663	8.338760	0	45
8.338855	8.338953	8.339049	8.339146	8.339242	8.339339	8.339435	8.339532	8.339628	8.339724	50	
8.339821	8.339917	8.340013	8.340110	8.340206	8.340302	8.340398	8.340494	8.340591	8.340687	40	
8.340783	8.340879	8.340975	8.341071	8.341167	8.341263	8.341359	8.341455	8.341551	8.341647	30	
8.341743	8.341839	8.341935	8.342031	8.342126	8.342222	8.342318	8.342414	8.342509	8.342605	20	
8.342701	8.342797	8.342892	8.342988	8.343084	8.343179	8.343275	8.343370	8.343466	8.343561	10	
8.343657	8.343752	8.343848	8.343943	8.344039	8.344134	8.344229	8.344325	8.344420	8.344515	0	44
8.344611	8.344706	8.344801	8.344896	8.344991	8.345087	8.345182	8.345277	8.345372	8.345467	50	
8.345562	8.345657	8.345752	8.345847	8.345942	8.346037	8.346132	8.346227	8.346322	8.346417	40	
8.346513	8.346607	8.346701	8.346796	8.346891	8.346986	8.347081	8.347175	8.347270	8.347365	30	
8.347459	8.347554	8.347649	8.347743	8.347838	8.347932	8.348027	8.348121	8.348216	8.348310	20	
8.348405	8.348499	8.348594	8.348688	8.348782	8.348877	8.348971	8.349065	8.349160	8.349254	10	
8.349348	8.349442	8.349537	8.349631	8.349725	8.349819	8.349913	8.350007	8.350101	8.350195	0	43
8.350290	8.350384	8.350478	8.350572	8.350666	8.350759	8.350853	8.350947	8.351041	8.351135	50	
8.351229	8.351323	8.351416	8.351510	8.351604	8.351698	8.351791	8.351885	8.351979	8.352073	40	
8.352166	8.352260	8.352353	8.352447	8.352541	8.352634	8.352728	8.352821	8.352915	8.353008	30	
8.353101	8.353195	8.353288	8.353382	8.353475	8.353568	8.353662	8.353755	8.353848	8.353941	20	
8.354035	8.354128	8.354221	8.354314	8.354407	8.354501	8.354594	8.354687	8.354780	8.354873	10	
8.354966	8.355059	8.355152	8.355245	8.355338	8.355431	8.355524	8.355617	8.355710	8.355802	0	42
8.355895	8.355988	8.356081	8.356174	8.356266	8.356359	8.356452	8.356545	8.356637	8.356730	50	
8.356823	8.356915	8.357008	8.357100	8.357193	8.357286	8.357378	8.357471	8.357563	8.357656	40	
8.357748	8.357840	8.357933	8.358025	8.358118	8.358210	8.358302	8.358395	8.358487	8.358579	30	
8.358671	8.358764	8.358856	8.358948	8.359040	8.359132	8.359224	8.359317	8.359409	8.359501	20	
8.359593	8.359685	8.359777	8.359869	8.359961	8.360053	8.360145	8.360237	8.360328	8.360420	10	
8.360512	8.360604	8.360696	8.360788	8.360879	8.360971	8.361063	8.361155	8.361246	8.361338	0	41
8.361430	8.361521	8.361613	8.361705	8.361796	8.361888	8.361979	8.362071	8.362162	8.362254	50	
8.362345	8.362437	8.362528	8.362620	8.362711	8.362802	8.362894	8.362985	8.363076	8.363168	40	
8.363259	8.363350	8.363441	8.363533	8.363624	8.363715	8.363806	8.363897	8.363989	8.364080	30	
8.364171	8.364262	8.364353	8.364444	8.364535	8.364626	8.364717	8.364808	8.364899	8.364990	20	
8.365081	8.365171	8.365262	8.365353	8.365444	8.365535	8.365626	8.365716	8.365807	8.365898	10	
8.365989	8.366079	8.366170	8.366261	8.366351	8.366442	8.366532	8.366623	8.366714	8.366804	0	40
10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	Seconds	Minutes
Co-tangent of 88 degrees, or Tangent of 178 degrees.										Seconds	Minutes

LOGARITHMIC TANGENTS.

Minutes Seconds		Tangent of 1 degree, or Co-tangent of 91 degrees.									
		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"
20	0	8.366895	8.366885	8.367076	8.367166	8.367256	8.367347	8.367437	8.367528	8.367618	8.367708
10	8.367799	8.367889	8.367979	8.368070	8.368160	8.368250	8.368340	8.368431	8.368521	8.368611	8.368701
20	8.368791	8.368881	8.368971	8.369061	8.369151	8.369241	8.369332	8.369422	8.369512	8.369602	8.369692
30	8.369681	8.369771	8.369861	8.369951	8.370041	8.370131	8.370221	8.370311	8.370401	8.370491	8.370581
40	8.370571	8.370661	8.370751	8.370841	8.370931	8.371021	8.371111	8.371201	8.371291	8.371381	8.371471
50	8.371461	8.371551	8.371641	8.371731	8.371821	8.371911	8.372001	8.372091	8.372181	8.372271	8.372361
21	0	8.372351	8.372441	8.372531	8.372621	8.372711	8.372801	8.372891	8.372981	8.373071	8.373161
10	8.373151	8.373241	8.373331	8.373421	8.373511	8.373601	8.373691	8.373781	8.373871	8.373961	8.374051
20	8.374041	8.374131	8.374221	8.374311	8.374401	8.374491	8.374581	8.374671	8.374761	8.374851	8.374941
30	8.374931	8.375021	8.375111	8.375201	8.375291	8.375381	8.375471	8.375561	8.375651	8.375741	8.375831
40	8.375821	8.375911	8.376001	8.376091	8.376181	8.376271	8.376361	8.376451	8.376541	8.376631	8.376721
50	8.376711	8.376801	8.376891	8.376981	8.377071	8.377161	8.377251	8.377341	8.377431	8.377521	8.377611
22	0	8.377601	8.377691	8.377781	8.377871	8.377961	8.378051	8.378141	8.378231	8.378321	8.378411
10	8.378401	8.378491	8.378581	8.378671	8.378761	8.378851	8.378941	8.379031	8.379121	8.379211	8.379301
20	8.379291	8.379381	8.379471	8.379561	8.379651	8.379741	8.379831	8.379921	8.380011	8.380101	8.380191
30	8.380181	8.380271	8.380361	8.380451	8.380541	8.380631	8.380721	8.380811	8.380901	8.380991	8.381081
40	8.381071	8.381161	8.381251	8.381341	8.381431	8.381521	8.381611	8.381701	8.381791	8.381881	8.381971
50	8.381961	8.382051	8.382141	8.382231	8.382321	8.382411	8.382501	8.382591	8.382681	8.382771	8.382861
23	0	8.382851	8.382941	8.383031	8.383121	8.383211	8.383301	8.383391	8.383481	8.383571	8.383661
10	8.383651	8.383741	8.383831	8.383921	8.384011	8.384101	8.384191	8.384281	8.384371	8.384461	8.384551
20	8.384541	8.384631	8.384721	8.384811	8.384901	8.384991	8.385081	8.385171	8.385261	8.385351	8.385441
30	8.385431	8.385521	8.385611	8.385701	8.385791	8.385881	8.385971	8.386061	8.386151	8.386241	8.386331
40	8.386321	8.386411	8.386501	8.386591	8.386681	8.386771	8.386861	8.386951	8.387041	8.387131	8.387221
50	8.387211	8.387301	8.387391	8.387481	8.387571	8.387661	8.387751	8.387841	8.387931	8.388021	8.388111
24	0	8.388101	8.388191	8.388281	8.388371	8.388461	8.388551	8.388641	8.388731	8.388821	8.388911
10	8.388901	8.388991	8.389081	8.389171	8.389261	8.389351	8.389441	8.389531	8.389621	8.389711	8.389801
20	8.389791	8.389881	8.389971	8.390061	8.390151	8.390241	8.390331	8.390421	8.390511	8.390601	8.390691
30	8.390681	8.390771	8.390861	8.390951	8.391041	8.391131	8.391221	8.391311	8.391401	8.391491	8.391581
40	8.391571	8.391661	8.391751	8.391841	8.391931	8.392021	8.392111	8.392201	8.392291	8.392381	8.392471
50	8.392461	8.392551	8.392641	8.392731	8.392821	8.392911	8.393001	8.393091	8.393181	8.393271	8.393361
25	0	8.393351	8.393441	8.393531	8.393621	8.393711	8.393801	8.393891	8.393981	8.394071	8.394161
10	8.394151	8.394241	8.394331	8.394421	8.394511	8.394601	8.394691	8.394781	8.394871	8.394961	8.395051
20	8.395041	8.395131	8.395221	8.395311	8.395401	8.395491	8.395581	8.395671	8.395761	8.395851	8.395941
30	8.395931	8.396021	8.396111	8.396201	8.396291	8.396381	8.396471	8.396561	8.396651	8.396741	8.396831
40	8.396821	8.396911	8.397001	8.397091	8.397181	8.397271	8.397361	8.397451	8.397541	8.397631	8.397721
50	8.397711	8.397801	8.397891	8.397981	8.398071	8.398161	8.398251	8.398341	8.398431	8.398521	8.398611
26	0	8.398601	8.398691	8.398781	8.398871	8.398961	8.399051	8.399141	8.399231	8.399321	8.399411
10	8.399401	8.399491	8.399581	8.399671	8.399761	8.399851	8.399941	8.400031	8.400121	8.400211	8.400301
20	8.400291	8.400381	8.400471	8.400561	8.400651	8.400741	8.400831	8.400921	8.401011	8.401101	8.401191
30	8.401181	8.401271	8.401361	8.401451	8.401541	8.401631	8.401721	8.401811	8.401901	8.401991	8.402081
40	8.402071	8.402161	8.402251	8.402341	8.402431	8.402521	8.402611	8.402701	8.402791	8.402881	8.402971
50	8.402961	8.403051	8.403141	8.403231	8.403321	8.403411	8.403501	8.403591	8.403681	8.403771	8.403861
27	0	8.403851	8.403941	8.404031	8.404121	8.404211	8.404301	8.404391	8.404481	8.404571	8.404661
10	8.404651	8.404741	8.404831	8.404921	8.405011	8.405101	8.405191	8.405281	8.405371	8.405461	8.405551
20	8.405541	8.405631	8.405721	8.405811	8.405901	8.405991	8.406081	8.406171	8.406261	8.406351	8.406441
30	8.406431	8.406521	8.406611	8.406701	8.406791	8.406881	8.406971	8.407061	8.407151	8.407241	8.407331
40	8.407321	8.407411	8.407501	8.407591	8.407681	8.407771	8.407861	8.407951	8.408041	8.408131	8.408221
50	8.408211	8.408301	8.408391	8.408481	8.408571	8.408661	8.408751	8.408841	8.408931	8.409021	8.409111
28	0	8.409101	8.409191	8.409281	8.409371	8.409461	8.409551	8.409641	8.409731	8.409821	8.409911
10	8.409901	8.410001	8.410091	8.410181	8.410271	8.410361	8.410451	8.410541	8.410631	8.410721	8.410811
20	8.410801	8.410891	8.410981	8.411071	8.411161	8.411251	8.411341	8.411431	8.411521	8.411611	8.411701
30	8.411691	8.411781	8.411871	8.411961	8.412051	8.412141	8.412231	8.412321	8.412411	8.412501	8.412591
40	8.412581	8.412671	8.412761	8.412851	8.412941	8.413031	8.413121	8.413211	8.413301	8.413391	8.413481
50	8.413471	8.413561	8.413651	8.413741	8.413831	8.413921	8.414011	8.414101	8.414191	8.414281	8.414371
29	0	8.414361	8.414451	8.414541	8.414631	8.414721	8.414811	8.414901	8.414991	8.415081	8.415171
10	8.415161	8.415251	8.415341	8.415431	8.415521	8.415611	8.415701	8.415791	8.415881	8.415971	8.416061
20	8.416051	8.416141	8.416231	8.416321	8.416411	8.416501	8.416591	8.416681	8.416771	8.416861	8.416951
30	8.416941	8.417031	8.417121	8.417211	8.417301	8.417391	8.417481	8.417571	8.417661	8.417751	8.417841
40	8.417831	8.417921	8.418011	8.418101	8.418191	8.418281	8.418371	8.418461	8.418551	8.418641	8.418731
50	8.418721	8.418811	8.418901	8.418991	8.419081	8.419171	8.419261	8.419351	8.419441	8.419531	8.419621
Minutes Seconds		Co-tangent of 88 degrees, or Tangent of 178 degrees.									
		10"	9"	8"	7"	6"	5"	4"	3"	2"	1"

LOGARITHMIC TANGENTS.

Tangent of 1 degree, or Co-tangent of 91 degrees.										Seconds	Minutes
0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
8.418068	8.418148	8.418229	8.418309	8.418390	8.418470	8.418550	8.418631	8.418711	8.418791	50	
8.418872	8.418952	8.419032	8.419113	8.419193	8.419273	8.419353	8.419434	8.419514	8.419594	40	
8.419674	8.419754	8.419834	8.419915	8.419995	8.420075	8.420155	8.420235	8.420315	8.420395	30	
8.420475	8.420555	8.420635	8.420715	8.420795	8.420875	8.420955	8.421035	8.421115	8.421195	20	
8.421275	8.421354	8.421434	8.421514	8.421594	8.421674	8.421753	8.421833	8.421913	8.421993	10	
8.422073	8.422152	8.422232	8.422312	8.422391	8.422471	8.422551	8.422630	8.422710	8.422789	0 20	
8.422869	8.422949	8.423028	8.423108	8.423187	8.423267	8.423346	8.423426	8.423505	8.423585	50	
8.423664	8.423743	8.423823	8.423902	8.423982	8.424061	8.424140	8.424220	8.424299	8.424378	40	
8.424458	8.424537	8.424616	8.424695	8.424775	8.424854	8.424933	8.425012	8.425091	8.425171	30	
8.425250	8.425329	8.425408	8.425487	8.425566	8.425645	8.425724	8.425803	8.425883	8.425962	20	
8.426041	8.426120	8.426199	8.426277	8.426356	8.426435	8.426514	8.426593	8.426672	8.426751	10	
8.426830	8.426909	8.426988	8.427066	8.427145	8.427224	8.427303	8.427381	8.427460	8.427539	0 28	
8.427618	8.427696	8.427775	8.427854	8.427932	8.428011	8.428090	8.428168	8.428247	8.428326	50	
8.428404	8.428483	8.428561	8.428640	8.428718	8.428797	8.428875	8.428954	8.429032	8.429111	40	
8.429189	8.429268	8.429346	8.429424	8.429503	8.429581	8.429659	8.429738	8.429816	8.429894	30	
8.429973	8.430051	8.430129	8.430208	8.430286	8.430364	8.430442	8.430520	8.430599	8.430677	20	
8.430755	8.430833	8.430911	8.430989	8.431067	8.431145	8.431224	8.431302	8.431380	8.431458	10	
8.431536	8.431614	8.431692	8.431770	8.431848	8.431926	8.432003	8.432081	8.432159	8.432237	0 27	
8.432315	8.432393	8.432471	8.432549	8.432626	8.432704	8.432782	8.432860	8.432938	8.433015	50	
8.433093	8.433171	8.433248	8.433326	8.433404	8.433482	8.433559	8.433637	8.433714	8.433792	40	
8.433870	8.433947	8.434025	8.434102	8.434180	8.434257	8.434335	8.434412	8.434490	8.434567	30	
8.434645	8.434722	8.434800	8.434877	8.434955	8.435032	8.435109	8.435187	8.435264	8.435341	20	
8.435419	8.435496	8.435573	8.435651	8.435728	8.435805	8.435882	8.435960	8.436037	8.436114	10	
8.436191	8.436268	8.436346	8.436423	8.436500	8.436577	8.436654	8.436731	8.436808	8.436885	0 26	
8.436962	8.437039	8.437116	8.437193	8.437270	8.437347	8.437424	8.437501	8.437578	8.437655	50	
8.437732	8.437809	8.437886	8.437963	8.438040	8.438116	8.438193	8.438270	8.438347	8.438424	40	
8.438500	8.438577	8.438654	8.438731	8.438807	8.438884	8.438961	8.439037	8.439114	8.439191	30	
8.439267	8.439344	8.439421	8.439497	8.439574	8.439650	8.439727	8.439803	8.439880	8.439957	20	
8.440033	8.440110	8.440186	8.440262	8.440339	8.440415	8.440492	8.440568	8.440645	8.440721	10	
8.440797	8.440874	8.440950	8.441026	8.441103	8.441179	8.441255	8.441332	8.441408	8.441484	0 25	
8.441560	8.441637	8.441713	8.441789	8.441865	8.441941	8.442017	8.442094	8.442170	8.442246	50	
8.442322	8.442398	8.442474	8.442550	8.442626	8.442702	8.442778	8.442854	8.442930	8.443006	40	
8.443082	8.443158	8.443234	8.443310	8.443386	8.443462	8.443538	8.443614	8.443690	8.443765	30	
8.443841	8.443917	8.443993	8.444069	8.444144	8.444220	8.444296	8.444372	8.444448	8.444523	20	
8.444599	8.444675	8.444750	8.444826	8.444902	8.444977	8.445053	8.445129	8.445204	8.445280	10	
8.445355	8.445431	8.445506	8.445582	8.445657	8.445733	8.445808	8.445884	8.445959	8.446035	0 24	
8.446110	8.446186	8.446261	8.446337	8.446412	8.446487	8.446563	8.446638	8.446713	8.446789	50	
8.446864	8.446939	8.447015	8.447090	8.447165	8.447240	8.447316	8.447391	8.447466	8.447541	40	
8.447616	8.447692	8.447767	8.447842	8.447917	8.447992	8.448067	8.448142	8.448217	8.448292	30	
8.448368	8.448443	8.448518	8.448593	8.448668	8.448743	8.448818	8.448893	8.448968	8.449043	20	
8.449117	8.449192	8.449267	8.449342	8.449417	8.449492	8.449567	8.449642	8.449716	8.449791	10	
8.449866	8.449941	8.450015	8.450090	8.450165	8.450240	8.450314	8.450389	8.450464	8.450539	0 23	
8.450613	8.450688	8.450762	8.450837	8.450912	8.450986	8.451061	8.451135	8.451210	8.451285	50	
8.451359	8.451434	8.451508	8.451583	8.451657	8.451732	8.451806	8.451881	8.451955	8.452029	40	
8.452104	8.452178	8.452253	8.452327	8.452401	8.452476	8.452550	8.452624	8.452699	8.452773	30	
8.452847	8.452922	8.452996	8.453070	8.453144	8.453218	8.453293	8.453367	8.453441	8.453515	20	
8.453589	8.453664	8.453738	8.453812	8.453886	8.453960	8.454034	8.454108	8.454182	8.454256	10	
8.454330	8.454404	8.454478	8.454552	8.454626	8.454700	8.454774	8.454848	8.454922	8.454996	0 22	
8.455070	8.455144	8.455218	8.455292	8.455365	8.455439	8.455513	8.455587	8.455661	8.455734	50	
8.455808	8.455882	8.455956	8.456030	8.456103	8.456177	8.456251	8.456324	8.456398	8.456472	40	
8.456545	8.456619	8.456693	8.456766	8.456840	8.456913	8.456987	8.457061	8.457134	8.457208	30	
8.457281	8.457355	8.457428	8.457502	8.457575	8.457649	8.457722	8.457796	8.457869	8.457942	20	
8.458016	8.458089	8.458163	8.458236	8.458309	8.458383	8.458456	8.458529	8.458603	8.458676	10	
8.458749	8.458823	8.458896	8.458969	8.459042	8.459116	8.459189	8.459262	8.459335	8.459408	0 21	
8.459481	8.459555	8.459628	8.459701	8.459774	8.459847	8.459920	8.459993	8.460066	8.460139	50	
8.460212	8.460285	8.460358	8.460431	8.460504	8.460577	8.460650	8.460723	8.460796	8.460869	40	
8.460942	8.461015	8.461088	8.461161	8.461234	8.461306	8.461379	8.461452	8.461525	8.461598	30	
8.461671	8.461743	8.461816	8.461889	8.461962	8.462034	8.462107	8.462180	8.462252	8.462325	20	
8.462398	8.462470	8.462543	8.462616	8.462688	8.462761	8.462834	8.462906	8.462979	8.463051	10	
8.463124	8.463196	8.463269	8.463341	8.463414	8.463486	8.463559	8.463631	8.463704	8.463776	0 20	
10"	9"	8"	7"	6"	5"	4"	3"	2"	1"	Seconds	Minutes
Co-tangent of 88 degrees, or Tangent of 178 degrees.											

TABLE XXXVII.

LOGARITHMIC TANGENTS.

		Tangent of 1 degree, or Co-tangent of 91 degrees.									
		0°	1°	2°	3°	4°	5°	6°	7°	8°	
40	0	8.463489	8.463921	8.463994	8.464066	8.464138	8.464211	8.464283	8.464355	8.464428	8.464500
10		8.464572	8.464603	8.464717	8.464789	8.464861	8.464934	8.465006	8.465078	8.465150	8.465222
20		8.465295	8.465367	8.465439	8.465511	8.465583	8.465656	8.465728	8.465800	8.465872	8.465944
30		8.466016	8.466088	8.466160	8.466232	8.466304	8.466376	8.466448	8.466520	8.466592	8.466664
40		8.466736	8.466808	8.466880	8.466952	8.467024	8.467096	8.467168	8.467239	8.467311	8.467383
50		8.467455	8.467527	8.467598	8.467670	8.467742	8.467814	8.467886	8.467957	8.468029	8.468101
41	0	8.468173	8.468244	8.468316	8.468388	8.468459	8.468531	8.468603	8.468674	8.468746	8.468818
10		8.468889	8.468961	8.469032	8.469104	8.469175	8.469247	8.469318	8.469390	8.469461	8.469533
20		8.469604	8.469676	8.469747	8.469819	8.469890	8.469962	8.470033	8.470104	8.470176	8.470248
30		8.470318	8.470390	8.470461	8.470532	8.470604	8.470675	8.470746	8.470818	8.470889	8.470961
40		8.471031	8.471103	8.471174	8.471245	8.471316	8.471387	8.471458	8.471530	8.471601	8.471673
50		8.471743	8.471814	8.471885	8.471956	8.472028	8.472099	8.472170	8.472241	8.472312	8.472384
42	0	8.472454	8.472525	8.472596	8.472667	8.472738	8.472809	8.472880	8.472951	8.473022	8.473094
10		8.473163	8.473234	8.473305	8.473376	8.473447	8.473518	8.473588	8.473659	8.473730	8.473802
20		8.473872	8.473942	8.474013	8.474084	8.474155	8.474225	8.474296	8.474367	8.474437	8.474509
30		8.474579	8.474649	8.474720	8.474791	8.474861	8.474932	8.475003	8.475073	8.475144	8.475215
40		8.475285	8.475355	8.475426	8.475496	8.475567	8.475637	8.475708	8.475778	8.475849	8.475920
50		8.475990	8.476060	8.476130	8.476201	8.476271	8.476342	8.476412	8.476482	8.476553	8.476624
43	0	8.476693	8.476764	8.476834	8.476904	8.476975	8.477045	8.477115	8.477185	8.477256	8.477327
10		8.477396	8.477466	8.477536	8.477606	8.477677	8.477747	8.477817	8.477888	8.477958	8.478029
20		8.478097	8.478168	8.478238	8.478308	8.478378	8.478448	8.478518	8.478588	8.478658	8.478729
30		8.478798	8.478868	8.478938	8.479008	8.479078	8.479148	8.479217	8.479287	8.479357	8.479428
40		8.479497	8.479567	8.479637	8.479707	8.479776	8.479846	8.479916	8.479986	8.480056	8.480127
50		8.480195	8.480265	8.480335	8.480404	8.480474	8.480544	8.480613	8.480683	8.480753	8.480824
44	0	8.480892	8.480962	8.481031	8.481101	8.481170	8.481240	8.481310	8.481379	8.481449	8.481519
10		8.481588	8.481657	8.481727	8.481796	8.481866	8.481935	8.482005	8.482074	8.482144	8.482214
20		8.482283	8.482352	8.482421	8.482491	8.482560	8.482630	8.482699	8.482768	8.482838	8.482908</

LOGARITHMIC TANGENTS.

Tangent of 1 degree, or Co-tangent of 91 degrees.										Seconds	Minutes
0"	1"	2"	3"	4"	5"	6"	7"	8"	9"		
8.505267	8.505333	8.505399	8.505465	8.505530	8.505596	8.505662	8.505728	8.505794	8.505859	50	9
8.505925	8.505991	8.506057	8.506122	8.506188	8.506254	8.506319	8.506385	8.506451	8.506516	40	
8.506582	8.506648	8.506713	8.506779	8.506845	8.506910	8.506976	8.507041	8.507107	8.507172	30	
8.507238	8.507304	8.507369	8.507435	8.507500	8.507566	8.507631	8.507697	8.507762	8.507828	20	
8.507893	8.507958	8.508024	8.508089	8.508155	8.508220	8.508286	8.508351	8.508416	8.508482	10	
8.508547	8.508612	8.508678	8.508743	8.508808	8.508874	8.508939	8.509004	8.509070	8.509135	0	
8.509200	8.509265	8.509331	8.509396	8.509461	8.509526	8.509591	8.509657	8.509722	8.509787	50	8
8.509852	8.509917	8.509982	8.510048	8.510113	8.510178	8.510243	8.510308	8.510373	8.510438	40	
8.510503	8.510568	8.510633	8.510698	8.510763	8.510828	8.510893	8.510958	8.511023	8.511088	30	
8.511153	8.511218	8.511283	8.511348	8.511413	8.511478	8.511543	8.511608	8.511673	8.511738	20	
8.511803	8.511867	8.511932	8.511997	8.512062	8.512127	8.512192	8.512256	8.512321	8.512386	10	
8.512451	8.512515	8.512580	8.512645	8.512710	8.512774	8.512839	8.512904	8.512969	8.513033	0	
8.513098	8.513163	8.513227	8.513292	8.513356	8.513421	8.513486	8.513550	8.513615	8.513680	50	7
8.513744	8.513809	8.513873	8.513938	8.514002	8.514067	8.514131	8.514196	8.514260	8.514325	40	
8.514389	8.514454	8.514518	8.514583	8.514647	8.514712	8.514776	8.514841	8.514905	8.514969	30	
8.515034	8.515098	8.515163	8.515227	8.515291	8.515356	8.515420	8.515484	8.515549	8.515613	20	
8.515677	8.515741	8.515806	8.515870	8.515934	8.515998	8.516063	8.516127	8.516191	8.516255	10	
8.516320	8.516384	8.516448	8.516512	8.516576	8.516640	8.516705	8.516769	8.516833	8.516897	0	
8.516961	8.517025	8.517089	8.517153	8.517217	8.517281	8.517346	8.517410	8.517474	8.517538	50	6
8.517602	8.517666	8.517730	8.517794	8.517858	8.517922	8.517985	8.518049	8.518113	8.518177	40	
8.518241	8.518305	8.518369	8.518433	8.518497	8.518561	8.518625	8.518688	8.518752	8.518816	30	
8.518880	8.518944	8.519007	8.519071	8.519135	8.519199	8.519263	8.519326	8.519390	8.519454	20	
8.519518	8.519581	8.519645	8.519709	8.519772	8.519836	8.519900	8.519963	8.520027	8.520091	10	
8.520154	8.520218	8.520282	8.520345	8.520409	8.520472	8.520536	8.520600	8.520663	8.520727	0	
8.520790	8.520854	8.520917	8.520981	8.521044	8.521108	8.521171	8.521235	8.521298	8.521362	50	5
8.521425	8.521488	8.521552	8.521615	8.521679	8.521742	8.521806	8.521869	8.521932	8.521996	40	
8.522059	8.522123	8.522186	8.522249	8.522313	8.522376	8.522439	8.522502	8.522566	8.522629	30	
8.522692	8.522756	8.522819	8.522882	8.522945	8.523008	8.523072	8.523135	8.523198	8.523261	20	
8.523324	8.523388	8.523451	8.523514	8.523577	8.523640	8.523703	8.523766	8.523829	8.523893	10	
8.523956	8.524019	8.524082	8.524145	8.524208	8.524271	8.524334	8.524397	8.524460	8.524523	0	
8.524586	8.524649	8.524712	8.524775	8.524838	8.524901	8.524964	8.525027	8.525090	8.525153	50	4
8.525215	8.525278	8.525341	8.525404	8.525467	8.525530	8.525593	8.525656	8.525718	8.525781	40	
8.525844	8.525907	8.525970	8.526032	8.526095	8.526158	8.526221	8.526284	8.526346	8.526409	30	
8.526472	8.526535	8.526597	8.526660	8.526722	8.526785	8.526848	8.526910	8.526973	8.527036	20	
8.527098	8.527161	8.527224	8.527286	8.527349	8.527411	8.527474	8.527536	8.527599	8.527662	10	
8.527724	8.527787	8.527849	8.527912	8.527974	8.528037	8.528099	8.528162	8.528224	8.528287	0	
8.528349	8.528411	8.528474	8.528536	8.528599	8.528661	8.528724	8.528786	8.528848	8.528911	50	3
8.528973	8.529035	8.529098	8.529160	8.529222	8.529285	8.529347	8.529409	8.529472	8.529534	40	
8.529596	8.529658	8.529721	8.529783	8.529845	8.529907	8.529970	8.530032	8.530094	8.530156	30	
8.530218	8.530281	8.530343	8.530405	8.530467	8.530529	8.530591	8.530653	8.530716	8.530778	20	
8.530840	8.530902	8.530964	8.531026	8.531088	8.531150	8.531212	8.531274	8.531336	8.531398	10	
8.531460	8.531522	8.531584	8.531646	8.531708	8.531770	8.531832	8.531894	8.531956	8.532018	0	
8.532080	8.532142	8.532204	8.532266	8.532327	8.532389	8.532451	8.532513	8.532575	8.532637	50	2
8.532698	8.532760	8.532822	8.532884	8.532946	8.533007	8.533069	8.533131	8.533193	8.533255	40	
8.533316	8.533378	8.533440	8.533501	8.533563	8.533625	8.533687	8.533748	8.533810	8.533872	30	
8.533933	8.533995	8.534056	8.534118	8.534180	8.534241	8.534303	8.534365	8.534426	8.534488	20	
8.534549	8.534611	8.534672	8.534734	8.534795	8.534857	8.534918	8.534980	8.535041	8.535103	10	
8.535164	8.535226	8.535287	8.535349	8.535410	8.535472	8.535533	8.535595	8.535656	8.535717	0	
8.535779	8.535840	8.535902	8.535963	8.536024	8.536086	8.536147	8.536208	8.536270	8.536331	50	1
8.536392	8.536454	8.536515	8.536576	8.536637	8.536699	8.536760	8.536821	8.536882	8.536944	40	
8.537005	8.537066	8.537127	8.537188	8.537250	8.537311	8.537372	8.537433	8.537494	8.537555	30	
8.537617	8.537678	8.537739	8.537800	8.537861	8.537922	8.537983	8.538044	8.538105	8.538166	20	
8.538227	8.538288	8.538350	8.538411	8.538472	8.538533	8.538594	8.538655	8.538716	8.538777	10	
8.538837	8.538898	8.538959	8.539020	8.539081	8.539142	8.539203	8.539264	8.539325	8.539386	0	
8.539447	8.539508	8.539568	8.539629	8.539690	8.539751	8.539812	8.539873	8.539933	8.539994	50	0
8.540055	8.540116	8.540177	8.540237	8.540298	8.540359	8.540420	8.540480	8.540541	8.540602	40	
8.540662	8.540723	8.540784	8.540845	8.540905	8.540966	8.541026	8.541087	8.541148	8.541208	30	
8.541269	8.541330	8.541390	8.541451	8.541511	8.541572	8.541633	8.541693	8.541754	8.541814	20	
8.541875	8.541935	8.541996	8.542056	8.542117	8.542177	8.542238	8.542298	8.542359	8.542419	10	
8.542480	8.542540	8.542601	8.542661	8.542721	8.542782	8.542842	8.542903	8.542963	8.543023	0	
10"	9"	8"	7"	6"	5"	4"	3"	2"	1"		
Co-tangent of 88 degrees, or Tangent of 178 degrees.										Seconds	Minutes

LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 2 degrees, or Co-tangent of 92 degrees.			Seconds	Minutes	Proport. parts.	Minutes	Seconds	Tangent of 2 degrees, or Co-tangent of 92 degrees.			Seconds
		0"	5"	10"						0"	5"	10"	
0	0	8.543084	8.543386	8.543687	45	1	60	15	0	8.594283	8.594552	8.594820	4
	15	8.543988	8.544290	8.544590	30	2	120		15	8.595088	8.595355	8.595623	3
	30	8.544891	8.545192	8.545492	15	3	180		30	8.595890	8.596158	8.596425	1
	45	8.545792	8.546092	8.546391	0	4	240		45	8.596692	8.596959	8.597225	1
1	0	8.546691	8.546990	8.547289	45	1	60	16	0	8.597492	8.597758	8.598024	4
	15	8.547588	8.547887	8.548185	30	2	119		15	8.598290	8.598556	8.598822	3
	30	8.548483	8.548781	8.549079	15	3	179		30	8.599087	8.599352	8.599618	1
	45	8.549377	8.549674	8.549971	0	4	238		45	8.599883	8.600148	8.600412	1
2	0	8.550268	8.550565	8.550862	45	1	59	17	0	8.600677	8.600941	8.601205	4
	15	8.551158	8.551454	8.551750	30	2	118		15	8.601469	8.601733	8.601997	3
	30	8.552046	8.552342	8.552637	15	3	177		30	8.602261	8.602524	8.602787	1
	45	8.552932	8.553227	8.553522	0	4	236		45	8.603050	8.603313	8.603576	1
3	0	8.553817	8.554111	8.554405	45	1	59	18	0	8.603839	8.604101	8.604363	4
	15	8.554699	8.554993	8.555287	30	2	117		15	8.604626	8.604888	8.605149	3
	30	8.555580	8.555873	8.556166	15	3	176		30	8.605411	8.605673	8.605934	1
	45	8.556459	8.556752	8.557044	0	4	234		45	8.606195	8.606456	8.606717	1
4	0	8.557336	8.557628	8.557920	45	1	58	19	0	8.606978	8.607238	8.607499	4
	15	8.558212	8.558503	8.558794	30	2	116		15	8.607759	8.608019	8.608279	3
	30	8.559085	8.559376	8.559667	15	3	174		30	8.608539	8.608798	8.609058	1
	45	8.559957	8.560248	8.560538	0	4	233		45	8.609317	8.609576	8.609836	1
5	0	8.560828	8.561117	8.561407	45	1	58	20	0	8.610094	8.610353	8.610612	4
	15	8.561696	8.561985	8.562274	30	2	115		15	8.610870	8.611128	8.611386	3
	30	8.562563	8.562851	8.563140	15	3	173		30	8.611644	8.611902	8.612160	1
	45	8.563428	8.563716	8.564004	0	4	231		45	8.612417	8.612675	8.612932	1
6	0	8.564291	8.564579	8.564866	45	1	57	21	0	8.613189	8.613446	8.613703	4
	15	8.565153	8.565440	8.565726	30	2	114		15	8.613959	8.614216	8.614472	3
	30	8.566013	8.566299	8.566585	15	3	172		30	8.614728	8.614984	8.615240	1
	45	8.566871	8.567157	8.567442	0	4	229		45	8.615495	8.615751	8.616006	1
7	0	8.567728	8.568013	8.568298	45	1	57	22	0	8.616262	8.616517	8.616772	4
	15	8.568582	8.568867	8.569151	30	2	114		15	8.617026	8.617281	8.617536	3
	30	8.569436	8.569720	8.570003	15	3	170		30	8.617790	8.618044	8.618298	1
	45	8.570287	8.570571	8.570854	0	4	227		45	8.618552	8.618806	8.619059	1
8	0	8.571137	8.571420	8.571703	45	1	56	23	0	8.619313	8.619566	8.619819	4
	15	8.571985	8.572267	8.572550	30	2	113		15	8.620072	8.620325	8.620578	3
	30	8.572832	8.573113	8.573395	15	3	169		30	8.620830	8.621083	8.621335	1
	45	8.573677	8.573958	8.574239	0	4	225		45	8.621587	8.621839	8.622091	1
9	0	8.574520	8.574801	8.575081	45	1	56	24	0	8.622343	8.622594	8.622846	4
	15	8.575361	8.575642	8.575922	30	2	112		15	8.623097	8.623348	8.623599	3
	30	8.576201	8.576481	8.576761	15	3	168		30	8.623850	8.624101	8.624351	1
	45	8.577040	8.577319	8.577598	0	4	224		45	8.624602	8.624852	8.625102	1
10	0	8.577877	8.578155	8.578434	45	1	55	25	0	8.625352	8.625602	8.625851	4
	15	8.578712	8.578990	8.579268	30	2	111		15	8.626101	8.626350	8.626599	3
	30	8.579545	8.579823	8.580100	15	3	166		30	8.626849	8.627098	8.627346	1
	45	8.580377	8.580654	8.580931	0	4	222		45	8.627595	8.627844	8.628092	1
11	0	8.581208	8.581484	8.581760	45	1	55	26	0	8.628340	8.628588	8.628836	4
	15	8.582037	8.582312	8.582588	30	2	110		15	8.629084	8.629332	8.629579	3
	30	8.582864	8.583139	8.583414	15	3	165		30	8.629827	8.630074	8.630321	1
	45	8.583689	8.583964	8.584239	0	4	220		45	8.630568	8.630815	8.631062	1
12	0	8.584514	8.584788	8.585062	45	1	55	27	0	8.631308	8.631555	8.631801	4
	15	8.585336	8.585610	8.585884	30	2	109		15	8.632047	8.632293	8.632539	3
	30	8.586157	8.586430	8.586704	15	3	164		30	8.632785	8.633030	8.633276	1
	45	8.586977	8.587249	8.587522	0	4	219		45	8.633521	8.633766	8.634011	1
13	0	8.587795	8.588067	8.588339	45	1	54	28	0	8.634256	8.634501	8.634746	4
	15	8.588611	8.588883	8.589154	30	2	108		15	8.634990	8.635235	8.635479	3
	30	8.589426	8.589697	8.589968	15	3	163		30	8.635723	8.635967	8.636211	1
	45	8.590239	8.590510	8.590781	0	4	217		45	8.636454	8.636698	8.636941	1
14	0	8.591051	8.591321	8.591591	45	1	54	29	0	8.637185	8.637428	8.637671	4
	15	8.591861	8.592131	8.592401	30	2	108		15	8.637913	8.638156	8.638399	3
	30	8.592670	8.592939	8.593209	15	3	162		30	8.638641	8.638884	8.639126	1
	45	8.593477	8.593746	8.594015	0	4	215		45	8.639368	8.639610	8.639852	1
Minutes	Seconds	Co-tangent of 87 degrees, or Tangent of 177 degrees.			Seconds	Minutes	Proport. parts.	Minutes	Seconds	Co-tangent of 87 degrees, or Tangent of 177 degrees.			Seconds
		15"	10"	5"						15"	10"	5"	

LOGARITHMIC TANGENTS.

Tangent of 2 degrees, or Cotangent of 92 degrees.				Tangent of 2 degrees, or Cotangent of 92 degrees.			
5"	10"	Seconds	Minutes	0'	5'	10'	Seconds
93 8.640335	8.640576	45	1" = 48	45 8.681544	8.681763	8.681983	45 1" = 44
17 8.641058	8.641299	30	2. 96	15 8.682202	8.682422	8.682641	30 2. 88
40 8.641781	8.642022	15	3. 144	30 8.682860	8.683079	8.683298	15 3. 131
62 8.642502	8.642742	0 29	4. 193	45 8.683516	8.683735	8.683954	0 14 4. 175
83 8.643222	8.643462	45	1 = 48	46 8.684172	8.684390	8.684608	45 1 = 44
22 8.643941	8.644181	30	2. 96	15 8.684827	8.685045	8.685262	30 2. 87
20 8.644659	8.644898	15	3. 143	30 8.685480	8.685698	8.685915	15 3. 131
37 8.645376	8.645614	0 28	4. 191	45 8.686133	8.686350	8.686567	0 13 4. 174
53 8.646091	8.646329	45	1 = 48	47 8.686784	8.687001	8.687218	45 1 = 43
68 8.646805	8.647043	30	2. 95	15 8.687435	8.687652	8.687868	30 2. 87
81 8.647519	8.647756	15	3. 143	30 8.688085	8.688301	8.688517	15 3. 130
93 8.648231	8.648468	0 27	4. 190	45 8.688734	8.688950	8.689166	0 12 4. 173
24 8.648941	8.649178	45	1 = 47	48 8.689381	8.689597	8.689813	45 1 = 43
14 8.649651	8.649887	30	2. 94	15 8.690028	8.690244	8.690459	30 2. 86
23 8.650359	8.650595	15	3. 142	30 8.690674	8.690889	8.691104	15 3. 129
31 8.651067	8.651302	0 26	4. 189	45 8.691319	8.691534	8.691748	0 11 4. 172
38 8.651773	8.652008	45	1 = 47	49 8.691963	8.692177	8.692392	45 1 = 43
43 8.652478	8.652713	30	2. 94	15 8.692606	8.692820	8.693034	30 2. 86
47 8.653182	8.653416	15	3. 141	30 8.693248	8.693462	8.693676	15 3. 128
50 8.653884	8.654118	0 25	4. 188	45 8.693889	8.694103	8.694316	0 10 4. 171
52 8.654586	8.654820	45	1 = 47	50 8.694529	8.694742	8.694956	45 1 = 43
53 8.655287	8.655520	30	2. 93	15 8.695169	8.695381	8.695594	30 2. 85
53 8.655986	8.656219	15	3. 140	30 8.695807	8.696019	8.696232	15 3. 128
52 8.656684	8.656917	0 24	4. 186	45 8.696444	8.696656	8.696869	0 9 4. 170
19 8.657381	8.657613	45	1 = 46	51 8.697081	8.697293	8.697504	45 1 = 42
15 8.658077	8.658309	30	2. 93	15 8.697716	8.697928	8.698139	30 2. 85
11 8.658772	8.659004	15	3. 139	30 8.698351	8.698562	8.698773	15 3. 127
15 8.659466	8.659697	0 23	4. 185	45 8.698984	8.699195	8.699406	0 8 4. 169
18 8.660159	8.660389	45	1 = 46	52 8.699617	8.699828	8.700039	45 1 = 42
10 8.660850	8.661081	30	2. 92	15 8.700249	8.700459	8.700670	30 2. 84
1 8.661541	8.661771	15	3. 138	30 8.700880	8.701090	8.701300	15 3. 126
11 8.662230	8.662460	0 22	4. 184	45 8.701510	8.701720	8.701929	0 7 4. 168
19 8.662919	8.663148	45	1 = 46	53 8.702139	8.702349	8.702558	45 1 = 42
17 8.663606	8.663835	30	2. 91	15 8.702767	8.702977	8.703186	30 2. 84
13 8.664292	8.664520	15	3. 137	30 8.703395	8.703603	8.703812	15 3. 125
13 8.664977	8.665205	0 21	4. 183	45 8.704021	8.704230	8.704438	0 6 4. 167
13 8.665661	8.665889	45	1 = 45	54 8.704647	8.704855	8.705063	45 1 = 42
6 8.666344	8.666571	30	2. 91	15 8.705271	8.705479	8.705687	30 2. 83
9 8.667026	8.667253	15	3. 136	30 8.705895	8.706103	8.706310	15 3. 125
0 8.667707	8.667933	0 20	4. 182	45 8.706518	8.706725	8.706932	0 5 4. 166
0 8.668386	8.668613	45	1 = 45	55 8.707140	8.707347	8.707554	45 1 = 41
9 8.669065	8.669291	30	2. 90	15 8.707761	8.707967	8.708174	30 2. 83
7 8.669743	8.669968	15	3. 135	30 8.708381	8.708587	8.708794	15 3. 124
4 8.670419	8.670645	0 19	4. 181	45 8.709000	8.709206	8.709412	0 4 4. 165
0 8.671095	8.671320	45	1 = 45	56 8.709619	8.709824	8.710030	45 1 = 41
5 8.671769	8.671994	30	2. 90	15 8.710236	8.710442	8.710647	30 2. 82
8 8.672443	8.672667	15	3. 135	30 8.710853	8.711058	8.711263	15 3. 123
1 8.673115	8.673339	0 18	4. 179	45 8.711469	8.711674	8.711879	0 3 4. 164
13 8.673786	8.674010	45	1 = 45	57 8.712083	8.712288	8.712493	45 1 = 41
4 8.674457	8.674680	30	2. 89	15 8.712697	8.712902	8.713106	30 2. 82
13 8.675126	8.675349	15	3. 134	30 8.713311	8.713515	8.713719	15 3. 123
2 8.675794	8.676017	0 17	4. 178	45 8.713923	8.714127	8.714331	0 2 4. 163
9 8.676462	8.676684	45	1 = 44	58 8.714535	8.714738	8.714942	45 1 = 41
6 8.677128	8.677350	30	2. 89	15 8.715145	8.715349	8.715552	30 2. 81
2 8.677793	8.678015	15	3. 133	30 8.715755	8.715958	8.716161	15 3. 122
6 8.678457	8.678679	0 16	4. 177	45 8.716364	8.716567	8.716769	0 1 4. 162
10 8.679121	8.679341	45	1 = 44	59 8.716972	8.717174	8.717377	45 1 = 40
18 8.679783	8.680003	30	2. 88	15 8.717579	8.717781	8.717984	30 2. 81
14 8.680444	8.680664	15	3. 132	30 8.718186	8.718387	8.718589	15 3. 121
14 8.681104	8.681324	0 15	4. 176	45 8.718791	8.718993	8.719194	0 0 4. 162
10"	5"	Seconds	Minutes	15"	10"	5"	Seconds
Tangent of 87 degrees, or Cotangent of 177 degrees.				Tangent of 87 degrees, or Cotangent of 177 degrees.			
Proport. parts.	Proport. parts.	Proport. parts.	Proport. parts.	Proport. parts.	Proport. parts.	Proport. parts.	Proport. parts.

LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 3 degrees, or Co-tangent of 93 degrees.			Seconds	Minutes	Proport. parts.	Minutes	Seconds	Tangent of 3 degrees, or Co-tangent of 93 degrees.			Seconds	Minutes	Proport. parts.
		0'	5"	10"						0'	5"	10"			
0	0	8.719396	8.719597	8.719798	45	1"	40	15	0	8.754227	8.754413	8.754599	45	1"	40
	15	8.720000	8.720201	8.720402	30	2.	80	15	15	8.754785	8.754970	8.755156	30	2.	80
	30	8.720603	8.720804	8.721004	15	3.	120	30	30	8.755341	8.755527	8.755712	15	3.	120
	45	8.721205	8.721405	8.721606	0	4.	161	45	45	8.755898	8.756083	8.756268	0	4.	161
1	0	8.721806	8.722007	8.722207	45	1=	40	16	0	8.756453	8.756638	8.756823	45	1=	40
	15	8.722407	8.722607	8.722807	30	2.	80	15	15	8.757008	8.757193	8.757377	30	2.	80
	30	8.723007	8.723206	8.723406	15	3.	120	30	30	8.757562	8.757747	8.757931	15	3.	120
	45	8.723605	8.723805	8.724004	0	4.	160	45	45	8.758115	8.758300	8.758484	0	4.	160
2	0	8.724204	8.724403	8.724602	45	1=	40	17	0	8.758668	8.758852	8.759036	45	1=	40
	15	8.724801	8.725000	8.725199	30	2.	79	15	15	8.759220	8.759404	8.759588	30	2.	79
	30	8.725397	8.725596	8.725794	15	3.	119	30	30	8.759771	8.759955	8.760139	15	3.	119
	45	8.725993	8.726191	8.726390	0	4.	159	45	45	8.760322	8.760505	8.760689	0	4.	159
3	0	8.726588	8.726786	8.726984	45	1=	40	18	0	8.760872	8.761055	8.761238	45	1=	40
	15	8.727182	8.727380	8.727577	30	2.	79	15	15	8.761421	8.761604	8.761787	30	2.	79
	30	8.727775	8.727973	8.728170	15	3.	119	30	30	8.761970	8.762152	8.762335	15	3.	119
	45	8.728367	8.728565	8.728762	0	4.	158	45	45	8.762518	8.762700	8.762882	0	4.	158
4	0	8.728959	8.729156	8.729353	45	1=	39	19	0	8.763065	8.763247	8.763429	45	1=	39
	15	8.729550	8.729747	8.729943	30	2.	79	15	15	8.763611	8.763793	8.763975	30	2.	79
	30	8.730140	8.730336	8.730533	15	3.	118	30	30	8.764157	8.764339	8.764520	15	3.	118
	45	8.730729	8.730925	8.731121	0	4.	157	45	45	8.764702	8.764884	8.765065	0	4.	157
5	0	8.731317	8.731513	8.731709	45	1=	39	20	0	8.765247	8.765428	8.765609	45	1=	39
	15	8.731905	8.732101	8.732296	30	2.	78	15	15	8.765790	8.765971	8.766152	30	2.	78
	30	8.732492	8.732687	8.732883	15	3.	117	30	30	8.766333	8.766514	8.766695	15	3.	117
	45	8.733078	8.733273	8.733468	0	4.	156	45	45	8.766876	8.767056	8.767237	0	4.	156
6	0	8.733663	8.733858	8.734053	45	1=	39	21	0	8.767418	8.767598	8.767778	45	1=	39
	15	8.734248	8.734442	8.734637	30	2.	78	15	15	8.767959	8.768139	8.768319	30	2.	78
	30	8.734831	8.735026	8.735220	15	3.	117	30	30	8.768499	8.768679	8.768859	15	3.	117
	45	8.735414	8.735608	8.735802	0	4.	155	45	45	8.769039	8.769218	8.769398	0	4.	155
7	0	8.735996	8.736190	8.736384	45	1=	39	22	0	8.769578	8.769757	8.769937	45	1=	39
	15	8.736578	8.736771	8.736965	30	2.	77	15	15	8.770116	8.770295	8.770475	30	2.	77
	30	8.737158	8.737352	8.737545	15	3.	116	30	30	8.770654	8.770833	8.771012	15	3.	116
	45	8.737738	8.737931	8.738124	0	4.	155	45	45	8.771191	8.771370	8.771549	0	4.	155
8	0	8.738317	8.738510	8.738703	45	1=	38	23	0	8.771727	8.771906	8.772085	45	1=	38
	15	8.738896	8.739088	8.739281	30	2.	77	15	15	8.772263	8.772442	8.772620	30	2.	77
	30	8.739473	8.739665	8.739858	15	3.	115	30	30	8.772798	8.772976	8.773155	15	3.	115
	45	8.740050	8.740242	8.740434	0	4.	154	45	45	8.773333	8.773511	8.773689	0	4.	154
9	0	8.740626	8.740818	8.741009	45	1=	38	24	0	8.773867	8.774044	8.774222	45	1=	38
	15	8.741201	8.741393	8.741584	30	2.	77	15	15	8.774400	8.774577	8.774755	30	2.	77
	30	8.741776	8.741967	8.742158	15	3.	115	30	30	8.774932	8.775108	8.775285	15	3.	115
	45	8.742349	8.742540	8.742731	0	4.	153	45	45	8.775464	8.775641	8.775818	0	4.	153
10	0	8.742922	8.743113	8.743304	45	1=	38	25	0	8.775995	8.776172	8.776349	45	1=	38
	15	8.743495	8.743685	8.743876	30	2.	76	15	15	8.776526	8.776703	8.776879	30	2.	76
	30	8.744066	8.744256	8.744447	15	3.	114	30	30	8.777056	8.777232	8.777409	15	3.	114
	45	8.744637	8.744827	8.745017	0	4.	152	45	45	8.777585	8.777761	8.777937	0	4.	152
11	0	8.745207	8.745397	8.745586	45	1=	38	26	0	8.778114	8.778290	8.778466	45	1=	38
	15	8.745776	8.745966	8.746155	30	2.	76	15	15	8.778642	8.778818	8.778993	30	2.	76
	30	8.746344	8.746534	8.746723	15	3.	114	30	30	8.779169	8.779345	8.779520	15	3.	114
	45	8.746912	8.747101	8.747290	0	4.	151	45	45	8.779696	8.779871	8.780047	0	4.	151
12	0	8.747479	8.747668	8.747857	45	1=	38	27	0	8.780222	8.780397	8.780572	45	1=	38
	15	8.748046	8.748234	8.748423	30	2.	75	15	15	8.780747	8.780922	8.781097	30	2.	75
	30	8.748611	8.748800	8.748988	15	3.	113	30	30	8.781272	8.781447	8.781622	15	3.	113
	45	8.749176	8.749364	8.749552	0	4.	151	45	45	8.781796	8.781971	8.782145	0	4.	151
13	0	8.749740	8.749928	8.750116	45	1=	37	28	0	8.782320	8.782494	8.782669	45	1=	37
	15	8.750303	8.750491	8.750679	30	2.	75	15	15	8.782843	8.783017	8.783191	30	2.	75
	30	8.750866	8.751054	8.751241	15	3.	112	30	30	8.783365	8.783539	8.783713	15	3.	112
	45	8.751428	8.751615	8.751802	0	4.	150	45	45	8.783887	8.784061	8.784234	0	4.	150
14	0	8.751989	8.752176	8.752363	45	1=	37	29	0	8.784408	8.784582	8.784755	45	1=	37
	15	8.752550	8.752736	8.752923	30	2.	75	15	15	8.784928	8.785102	8.785275	30	2.	75
	30	8.753110	8.753296	8.753482	15	3.	112	30	30	8.785448	8.785621	8.785795	15	3.	112
	45	8.753669	8.753855	8.754041	0	4.	149	45	45	8.785968	8.786140	8.786313	0	4.	149
Minutes	Seconds	Co-tangent of 86 degrees, or Tangent of 176 degrees.			Seconds	Minutes	Proport. parts.	Minutes	Seconds	Co-tangent of 86 degrees, or Tangent of 176 degrees.			Seconds	Minutes	Proport. parts.
		15"	10"	5"						15"	10"	5"			

LOGARITHMIC TANGENTS.

Tangent of 3 degrees, or Co-tangent of 93 degrees.		Seconds		Proport. parts.	Tangent of 3 degrees, or Co-tangent of 93 degrees.		Seconds		Proport. parts.				
5"	10"	Minutes	Seconds		0"	5"	10"	Minutes		Seconds			
168.786659	8.786832	45	0	1" = 34	45	0	8.816529	8.816691	8.816852	45	0	1" = 32	
148.787177	8.787349	30	15	2. 69	15	15	8.817013	8.817174	8.817335	30	15	2. 64	
128.787694	8.787866	15	30	3. 103	30	30	8.817496	8.817657	8.817818	15	30	3. 97	
88.788210	8.788382	0	29	4. 138	45	45	8.817979	8.818140	8.818300	0	14	4. 129	
48.788726	8.788898	45	0	1" = 34	46	0	8.818461	8.818621	8.818782	45	0	1" = 32	
28.789242	8.789413	30	15	2. 69	15	15	8.818942	8.819103	8.819263	30	15	2. 64	
8.789756	8.789928	15	30	3. 103	30	30	8.819423	8.819584	8.819744	15	30	3. 96	
908.790271	8.790442	0	28	4. 137	45	45	8.819904	8.820064	8.820224	0	13	4. 128	
38.790784	8.790955	45	0	1" = 34	47	0	8.820384	8.820544	8.820704	45	0	1" = 32	
18.791297	8.791468	30	15	2. 68	15	15	8.820863	8.821023	8.821183	30	15	2. 64	
98.791809	8.791980	15	30	3. 102	30	30	8.821342	8.821502	8.821661	15	30	3. 96	
18.792321	8.792492	0	27	4. 137	45	45	8.821821	8.821980	8.822139	0	12	4. 128	
28.792832	8.793003	45	0	1" = 34	48	0	8.822298	8.822458	8.822617	45	0	1" = 32	
38.793343	8.793513	30	15	2. 68	15	15	8.822776	8.822935	8.823094	30	15	2. 64	
38.793853	8.794023	15	30	3. 102	30	30	8.823253	8.823411	8.823570	15	30	3. 95	
28.794362	8.794532	0	26	4. 136	45	45	8.823729	8.823888	8.824046	0	11	4. 127	
18.794871	8.795040	45	0	1" = 34	49	0	8.824205	8.824363	8.824522	45	0	1" = 32	
8.795379	8.795548	30	15	2. 68	15	15	8.824680	8.824838	8.824997	30	15	2. 63	
88.795887	8.796056	15	30	3. 101	30	30	8.825155	8.825313	8.825471	15	30	3. 95	
58.796394	8.796563	0	25	4. 136	45	45	8.825629	8.825787	8.825945	0	10	4. 126	
18.796900	8.797069	45	0	1" = 34	50	0	8.826103	8.826260	8.826418	45	0	1" = 31	
78.797406	8.797574	30	15	2. 67	15	15	8.826576	8.826734	8.826891	30	15	2. 63	
38.797911	8.798079	15	30	3. 101	30	30	8.827049	8.827206	8.827363	15	30	3. 94	
88.798416	8.798584	0	24	4. 135	45	45	8.827521	8.827678	8.827835	0	9	4. 126	
28.798920	8.799088	45	0	1" = 34	51	0	8.827992	8.828150	8.828307	45	0	1" = 31	
68.799423	8.799591	30	15	2. 67	15	15	8.828464	8.828621	8.828777	30	15	2. 63	
98.799926	8.800094	15	30	3. 101	30	30	8.828934	8.829091	8.829248	15	30	3. 94	
18.800420	8.800596	0	23	4. 134	45	45	8.829405	8.829561	8.829718	0	8	4. 125	
38.800930	8.801098	45	0	1" = 33	52	0	8.829874	8.830031	8.830187	45	0	1" = 31	
58.801432	8.801599	30	15	2. 67	15	15	8.830343	8.830500	8.830656	30	15	2. 62	
58.801932	8.802099	15	30	3. 100	30	30	8.830812	8.830968	8.831124	15	30	3. 94	
58.802432	8.802599	0	22	4. 133	45	45	8.831280	8.831436	8.831592	0	7	4. 125	
58.802932	8.803098	45	0	1" = 33	53	0	8.831748	8.831904	8.832059	45	0	1" = 31	
48.803431	8.803597	30	15	2. 66	15	15	8.832215	8.832371	8.832526	30	15	2. 62	
38.803929	8.804095	15	30	3. 100	30	30	8.832682	8.832837	8.832992	15	30	3. 93	
18.804427	8.804593	0	21	4. 133	45	45	8.833148	8.833303	8.833458	0	6	4. 124	
8.804924	8.805090	45	0	1" = 33	54	0	8.833613	8.833769	8.833924	45	0	1" = 31	
58.805421	8.805586	30	15	2. 66	15	15	8.834079	8.834234	8.834389	30	15	2. 62	
18.805917	8.806082	15	30	3. 99	30	30	8.834543	8.834698	8.834853	15	30	3. 93	
78.806412	8.806577	0	20	4. 132	45	45	8.835008	8.835162	8.835317	0	5	4. 124	
28.806907	8.807072	45	0	1" = 33	55	0	8.835471	8.835626	8.835780	45	0	1" = 31	
78.807402	8.807566	30	15	2. 66	15	15	8.835934	8.836089	8.836243	30	15	2. 62	
18.807895	8.808060	15	30	3. 99	30	30	8.836397	8.836551	8.836705	15	30	3. 92	
48.808380	8.808543	0	19	4. 132	45	45	8.836859	8.837013	8.837167	0	4	4. 123	
78.808881	8.809046	45	0	1" = 33	56	0	8.837321	8.837475	8.837629	45	0	1" = 31	
28.809374	8.809538	30	15	2. 66	15	15	8.837782	8.837936	8.838090	30	15	2. 61	
18.809865	8.810029	15	30	3. 98	30	30	8.838243	8.838397	8.838550	15	30	3. 92	
18.810356	8.810520	0	18	4. 131	45	45	8.838704	8.838857	8.839010	0	3	4. 123	
38.810847	8.811010	45	0	1" = 33	57	0	8.839163	8.839316	8.839470	45	0	1" = 31	
18.811337	8.811500	30	15	2. 65	15	15	8.839623	8.839776	8.839929	30	15	2. 61	
38.811826	8.811989	15	30	3. 98	30	30	8.840081	8.840234	8.840387	15	30	3. 92	
28.812315	8.812478	0	17	4. 130	45	45	8.840540	8.840693	8.840845	0	2	4. 122	
18.812803	8.812966	45	0	1" = 32	58	0	8.840998	8.841150	8.841303	45	0	1" = 30	
78.813291	8.813454	30	15	2. 65	15	15	8.841455	8.841608	8.841760	30	15	2. 61	
58.813779	8.813941	15	30	3. 97	30	30	8.841912	8.842064	8.842216	15	30	3. 91	
38.814265	8.814427	0	16	4. 130	45	45	8.842369	8.842521	8.842673	0	1	4. 122	
78.814751	8.814913	45	0	1" = 32	59	0	8.842825	8.842976	8.843128	45	0	1" = 30	
58.815237	8.815399	30	15	2. 65	15	15	8.843280	8.843432	8.843583	30	15	2. 61	
18.815722	8.815884	15	30	3. 97	30	30	8.843735	8.843887	8.844038	15	30	3. 91	
58.816207	8.816368	0	15	4. 129	45	45	8.844190	8.844341	8.844492	0	0	4. 121	
10"	5"	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15"	10"	5"	Seconds	Minutes	Proport. parts.	
Tangent of 86 degrees, or Co-tangent of 176 degrees.		Tangent of 86 degrees, or Co-tangent of 176 degrees.		Tangent of 86 degrees, or Co-tangent of 176 degrees.		Tangent of 86 degrees, or Co-tangent of 176 degrees.		Tangent of 86 degrees, or Co-tangent of 176 degrees.		Tangent of 86 degrees, or Co-tangent of 176 degrees.		Tangent of 86 degrees, or Co-tangent of 176 degrees.	

LOGARITHMIC TANGENTS.

Minutes		Seconds		Tangent of 4 degrees, or Co-tangent of 94 degrees.			Minutes		Seconds		Tangent of 4 degrees, or Co-tangent of 94 degrees.			Minutes		Seconds	
				0°	5°	10°					0°	5°	10°				
0	0	8.844644	8.844795	8.844946	45	1" = 30	15	0	8.871064	8.871206	8.871349	45	0	8.871064	8.871206	8.871349	45
15	0	8.845097	8.845249	8.845400	30	2. 60	15	15	8.871491	8.871633	8.871776	30	15	8.871491	8.871633	8.871776	30
30	0	8.845551	8.845702	8.845853	15	3. 91	30	30	8.871918	8.872060	8.872203	15	30	8.871918	8.872060	8.872203	15
45	0	8.846003	8.846154	8.846305	0	4. 121	45	45	8.872344	8.872486	8.872628	0	45	8.872344	8.872486	8.872628	0
1	0	8.846455	8.846606	8.846757	45	1 = 30	16	0	8.872770	8.872912	8.873054	45	0	8.872770	8.872912	8.873054	45
15	0	8.846907	8.847058	8.847209	30	2. 60	15	15	8.873195	8.873337	8.873479	30	15	8.873195	8.873337	8.873479	30
30	0	8.847359	8.847509	8.847659	15	3. 90	30	30	8.873621	8.873762	8.873904	15	30	8.873621	8.873762	8.873904	15
45	0	8.847809	8.847960	8.848110	0	4. 120	45	45	8.874045	8.874187	8.874328	0	45	8.874045	8.874187	8.874328	0
2	0	8.848260	8.848410	8.848560	45	1 = 30	17	0	8.874469	8.874611	8.874752	45	0	8.874469	8.874611	8.874752	45
15	0	8.848710	8.848860	8.849009	30	2. 60	15	15	8.874893	8.875034	8.875176	30	15	8.874893	8.875034	8.875176	30
30	0	8.849159	8.849309	8.849458	15	3. 90	30	30	8.875317	8.875458	8.875599	15	30	8.875317	8.875458	8.875599	15
45	0	8.849608	8.849758	8.849907	0	4. 120	45	45	8.875740	8.875881	8.876021	0	45	8.875740	8.875881	8.876021	0
3	0	8.850057	8.850206	8.850355	45	1 = 30	18	0	8.876162	8.876303	8.876444	45	0	8.876162	8.876303	8.876444	45
15	0	8.850505	8.850654	8.850803	30	2. 60	15	15	8.876585	8.876725	8.876866	30	15	8.876585	8.876725	8.876866	30
30	0	8.850952	8.851101	8.851250	15	3. 89	30	30	8.877006	8.877147	8.877287	15	30	8.877006	8.877147	8.877287	15
45	0	8.851399	8.851548	8.851697	0	4. 119	45	45	8.877428	8.877568	8.877708	0	45	8.877428	8.877568	8.877708	0
4	0	8.851846	8.851995	8.852144	45	1 = 30	19	0	8.877849	8.877989	8.878129	45	0	8.877849	8.877989	8.878129	45
15	0	8.852292	8.852441	8.852590	30	2. 59	15	15	8.878269	8.878409	8.878549	30	15	8.878269	8.878409	8.878549	30
30	0	8.852738	8.852887	8.853035	15	3. 89	30	30	8.878690	8.878829	8.878969	15	30	8.878690	8.878829	8.878969	15
45	0	8.853184	8.853332	8.853480	0	4. 119	45	45	8.879109	8.879249	8.879389	0	45	8.879109	8.879249	8.879389	0
5	0	8.853628	8.853777	8.853925	45	1 = 30	20	0	8.879529	8.879668	8.879808	45	0	8.879529	8.879668	8.879808	45
15	0	8.854073	8.854221	8.854369	30	2. 59	15	15	8.879948	8.880087	8.880227	30	15	8.879948	8.880087	8.880227	30
30	0	8.854517	8.854665	8.854813	15	3. 89	30	30	8.880366	8.880506	8.880645	15	30	8.880366	8.880506	8.880645	15
45	0	8.854960	8.855108	8.855256	0	4. 118	45	45	8.880784	8.880924	8.881063	0	45	8.880784	8.880924	8.881063	0
6	0	8.855403	8.855551	8.855699	45	1 = 29	21	0	8.881202	8.881341	8.881481	45	0	8.881202	8.881341	8.881481	45
15	0	8.855846	8.855994	8.856141	30	2. 59	15	15	8.881620	8.881759	8.881898	30	15	8.881620	8.881759	8.881898	30
30	0	8.856288	8.856436	8.856583	15	3. 88	30	30	8.882037	8.882176	8.882314	15	30	8.882037	8.882176	8.882314	15
45	0	8.856730	8.856877	8.857024	0	4. 118	45	45	8.882453	8.882592	8.882731	0	45	8.882453	8.882592	8.882731	0
7	0	8.857171	8.857318	8.857465	45	1 = 29	22	0	8.882869	8.883008	8.883147	45	0	8.882869	8.883008	8.883147	45
15	0	8.857612	8.857759	8.857906	30	2. 59	15	15	8.883285	8.883424	8.883562	30	15	8.883285	8.883424	8.883562	30
30	0	8.858053	8.858199	8.858346	15	3. 88	30	30	8.883701	8.883839	8.883977	15	30	8.883701	8.883839	8.883977	15
45	0	8.858493	8.858639	8.858786	0	4. 117	45	45	8.884116	8.884254	8.884392	0	45	8.884116	8.884254	8.884392	0
8	0	8.858932	8.859079	8.859225	45	1 = 29	23	0	8.884530	8.884668	8.884807	45	0	8.884530	8.884668	8.884807	45
15	0	8.859371	8.859518	8.859664	30	2. 58	15	15	8.884945	8.885083	8.885221	30	15	8.884945	8.885083	8.885221	30
30	0	8.859810	8.859956	8.860102	15	3. 88	30	30	8.885358	8.885496	8.885634	15	30	8.885358	8.885496	8.885634	15
45	0	8.860248	8.860394	8.860540	0	4. 117	45	45	8.885772	8.885910	8.886047	0	45	8.885772	8.885910	8.886047	0
9	0	8.860686	8.860832	8.860978	45	1 = 29	24	0	8.886185	8.886323	8.886460	45	0	8.886185	8.886323	8.886460	45
15	0	8.861123	8.861269	8.861415	30	2. 58	15	15	8.886598	8.886735	8.886873	30	15	8.886598	8.886735	8.886873	30
30	0	8.861560	8.861706	8.861851	15	3. 87	30	30	8.887010	8.887147	8.887285	15	30	8.887010	8.887147	8.887285	15
45	0	8.861997	8.862142	8.862287	0	4. 116	45	45	8.887422	8.887559	8.887696	0	45	8.887422	8.887559	8.887696	0
10	0	8.862433	8.862578	8.862723	45	1 = 29	25	0	8.887833	8.887971	8.888108	45	0	8.887833	8.887971	8.888108	45
15	0	8.862868	8.863013	8.863158	30	2. 58	15	15	8.888245	8.888382	8.888518	30	15	8.888245	8.888382	8.888518	30
30	0	8.863304	8.863448	8.863593	15	3. 87	30	30	8.888655	8.888792	8.888929	15	30	8.888655	8.888792	8.888929	15
45	0	8.863738	8.863883	8.864028	0	4. 116	45	45	8.889066	8.889202	8.889339	0	45	8.889066	8.889202	8.889339	0
11	0	8.864173	8.864317	8.864462	45	1 = 29	26	0	8.889476	8.889612	8.889749	45	0	8.889476	8.889612	8.889749	45
15	0	8.864606	8.864751	8.864895	30	2. 58	15	15	8.889885	8.890022	8.890158	30	15	8.889885	8.890022	8.890158	30
30	0	8.865040	8.865184	8.865329	15	3. 87	30	30	8.890295	8.890431	8.890567	15	30	8.890295	8.890431	8.890567	15
45	0	8.865473	8.865617	8.865761	0	4. 115	45	45	8.890703	8.890840	8.890976	0	45	8.890703	8.890840	8.890976	0
12	0	8.865906	8.866050	8.866194	45	1 = 29	27	0	8.891112	8.891248	8.891384	45	0	8.891112	8.891248	8.891384	45
15	0	8.866338	8.866482	8.866626	30	2. 58	15	15	8.891520	8.891656	8.891792	30	15	8.891520	8.891656	8.891792	30
30	0	8.866770	8.866913	8.867057	15	3. 86	30	30	8.891928	8.892064	8.892199	15	30	8.891928	8.892064	8.892199	15
45	0	8.867201	8.867345	8.867488	0	4. 115	45	45	8.892335	8.892471	8.892606	0	45	8.892335	8.892471	8.892606	0
13	0	8.867632	8.867775	8.867919	45	1 = 29	28	0	8.892742	8.892878	8.893013	45	0	8.892742	8.892878	8.893013	45
15	0	8.868062	8.868206	8.868349	30	2. 57	15	15	8.893149	8.893284	8.893419	30	15	8.893149	8.893284	8.893419	30
30	0	8.868492	8.868636	8.868779	15	3. 86	30	30	8.893555	8.893690	8.893825	15	30	8.893555	8.893690	8.893825	15
45	0	8.868923	8.869065	8.869208	0	4. 115	45	45	8.893961	8.894096	8.894231	0	45	8.893961	8.894096	8.894231	0
14	0	8.869351	8.869494	8.869637	45	1 = 29	29	0	8.894366	8.894501	8.894636	45	0	8.894366	8.894501	8.894636	45
15	0	8.869780	8.869923	8.870066	30	2. 57	15	15	8.894771	8.894906	8.895041	30	15	8.894771	8.894906	8.895041	30
30	0	8.870208	8.870351	8.870494	15	3. 86	30	30	8.895176	8.895311	8.895445	15	30	8.895176	8.895311	8.895445	15
45	0	8.870636	8.870779	8.870921	0	4. 114	45	45	8.895580	8.895715	8.895850	0	45	8.895580	8.895715	8.895850	0
Minutes		Seconds		15°			Minutes		Seconds		15°			Minutes		Seconds	
				Co-tangent of 85 degrees, or Tangent of 175 degrees.							Co-tangent of 85 degrees, or Tangent of 175 degrees.						

LOGARITHMIC TANGENTS.

Tangent of 4 degrees, or tangent of 94 degrees.			Seconds	Minutes	Proport. parts.	Tangent of 4 degrees, or Co-tangent of 94 degrees.			Seconds	Minutes	Proport. parts.			
1°	5°	10°				0°	5°	10°						
5984	8.896119	8.896253	45	1	27	45	0	8.919568	8.919695	8.919823	45	1	25	
6388	8.896522	8.896657	30	2	54	15	15	8.919950	8.920078	8.920205	30	2	51	
6791	8.896925	8.897060	15	3	81	30	30	8.920332	8.920460	8.920587	15	3	76	
7194	8.897328	8.897462	0	29	4	45	45	8.920714	8.920841	8.920969	0	14	4	102
7596	8.897730	8.897864	45	1	27	46	0	8.921096	8.921223	8.921350	45	1	25	
7998	8.898132	8.898266	30	2	54	15	15	8.921477	8.921604	8.921731	30	2	51	
8400	8.898534	8.898668	15	3	80	30	30	8.921858	8.921985	8.922112	15	3	76	
8802	8.898935	8.899069	0	28	4	45	45	8.922238	8.922365	8.922492	0	13	4	102
9203	8.899336	8.899470	45	1	27	47	0	8.922619	8.922745	8.922872	45	1	25	
9603	8.899737	8.899870	30	2	53	15	15	8.922999	8.923125	8.923252	30	2	51	
9904	8.900137	8.900270	15	3	80	30	30	8.923378	8.923505	8.923631	15	3	76	
0404	8.900537	8.900670	0	27	4	45	45	8.923757	8.923884	8.924010	0	12	4	101
0803	8.900936	8.901069	45	1	27	48	0	8.924136	8.924263	8.924389	45	1	25	
1202	8.901335	8.901468	30	2	53	15	15	8.924515	8.924641	8.924767	30	2	50	
1601	8.901734	8.901867	15	3	80	30	30	8.924893	8.925019	8.925145	15	3	76	
2000	8.902132	8.902265	0	26	4	45	45	8.925271	8.925397	8.925523	0	11	4	101
2398	8.902530	8.902663	45	1	26	49	0	8.925649	8.925775	8.925900	45	1	25	
2795	8.902928	8.903060	30	2	53	15	15	8.926026	8.926152	8.926277	30	2	50	
3193	8.903325	8.903458	15	3	79	30	30	8.926403	8.926529	8.926654	15	3	75	
3590	8.903722	8.903854	0	25	4	45	45	8.926780	8.926905	8.927031	0	10	4	100
3987	8.904119	8.904251	45	1	26	50	0	8.927156	8.927281	8.927407	45	1	25	
4383	8.904515	8.904647	30	2	53	15	15	8.927532	8.927657	8.927783	30	2	50	
4779	8.904911	8.905043	15	3	79	30	30	8.927908	8.928033	8.928158	15	3	75	
5175	8.905306	8.905438	0	24	4	45	45	8.928283	8.928408	8.928533	0	9	4	100
5570	8.905701	8.905833	45	1	26	51	0	8.928658	8.928783	8.928908	45	1	25	
5965	8.906096	8.906228	30	2	53	15	15	8.929033	8.929158	8.929283	30	2	50	
6359	8.906491	8.906622	15	3	79	30	30	8.929407	8.929532	8.929657	15	3	75	
6753	8.906885	8.907016	0	23	4	45	45	8.929781	8.929906	8.930031	0	8	4	100
7147	8.907278	8.907410	45	1	26	52	0	8.930155	8.930280	8.930404	45	1	25	
7541	8.907672	8.907803	30	2	52	15	15	8.930529	8.930653	8.930777	30	2	50	
7934	8.908065	8.908196	15	3	79	30	30	8.930902	8.931026	8.931150	15	3	75	
8327	8.908458	8.908588	0	22	4	45	45	8.931275	8.931399	8.931523	0	7	4	99
8719	8.908850	8.908981	45	1	26	53	0	8.931647	8.931771	8.931895	45	1	25	
9111	8.909242	8.909372	30	2	52	15	15	8.932019	8.932143	8.932267	30	2	50	
9503	8.909633	8.909764	15	3	78	30	30	8.932391	8.932515	8.932639	15	3	74	
9894	8.910025	8.910155	0	21	4	45	45	8.932763	8.932887	8.933010	0	6	4	99
1285	8.910416	8.910546	45	1	26	54	0	8.933134	8.933258	8.933381	45	1	25	
1676	8.910806	8.910936	30	2	52	15	15	8.933505	8.933629	8.933752	30	2	49	
2066	8.911196	8.911326	15	3	78	30	30	8.933876	8.933999	8.934123	15	3	74	
2456	8.911586	8.911716	0	20	4	45	45	8.934246	8.934369	8.934493	0	5	4	99
2846	8.911976	8.912106	45	1	26	55	0	8.934616	8.934739	8.934863	45	1	25	
3235	8.912365	8.912495	30	2	52	15	15	8.934986	8.935109	8.935232	30	2	49	
3624	8.912754	8.912883	15	3	78	30	30	8.935355	8.935478	8.935601	15	3	74	
4013	8.913142	8.913272	0	19	4	45	45	8.935724	8.935847	8.935970	0	4	4	98
4401	8.913531	8.913660	45	1	26	56	0	8.936093	8.936216	8.936339	45	1	25	
4789	8.913918	8.914048	30	2	52	15	15	8.936461	8.936584	8.936707	30	2	49	
5177	8.914306	8.914435	15	3	77	30	30	8.936830	8.936952	8.937075	15	3	74	
5564	8.914693	8.914822	0	18	4	45	45	8.937197	8.937320	8.937443	0	3	4	98
5951	8.915080	8.915209	45	1	26	57	0	8.937565	8.937687	8.937810	45	1	24	
6338	8.915466	8.915595	30	2	51	15	15	8.937932	8.938055	8.938177	30	2	49	
6724	8.915852	8.915981	15	3	77	30	30	8.938299	8.938421	8.938544	15	3	73	
7110	8.916238	8.916367	0	17	4	45	45	8.938666	8.938788	8.938910	0	2	4	98
7495	8.916624	8.916752	45	1	26	58	0	8.939032	8.939154	8.939276	45	1	24	
7880	8.917009	8.917137	30	2	51	15	15	8.939398	8.939520	8.939642	30	2	49	
8265	8.917394	8.917522	15	3	77	30	30	8.939764	8.939886	8.940008	15	3	73	
8650	8.917778	8.917906	0	16	4	45	45	8.940129	8.940251	8.940373	0	1	4	97
9034	8.918162	8.918290	45	1	26	59	0	8.940494	8.940616	8.940738	45	1	24	
9418	8.918546	8.918674	30	2	51	15	15	8.940859	8.940981	8.941102	30	2	49	
9801	8.918929	8.919057	15	3	77	30	30	8.941224	8.941345	8.941467	15	3	73	
185	8.919312	8.919440	0	15	4	45	45	8.941588	8.941709	8.941831	0	0	4	97
10°			5°	Seconds	Minutes	Proport. parts.	15°			10°	5°	Seconds	Minutes	Proport. parts.
Tangent of 85 degrees, or tangent of 175 degrees.														

LOGARITHMIC TANGENTS.

Minutes		Seconds		Tangent of 5 degrees, or Co-tangent of 95 degrees.			Seconds		Minutes		Proport. parts.	Minutes		Seconds		Tangent of 5 degrees, or Co-tangent of 95 degrees.			Seconds	
				0'	5'	10'										0'	5'	10'		
0	0	8.941952	8.942073	8.942194	45	1	24	15	0	8.963255	8.963376	8.963486	45	1	24	15	0	8.963255	8.963376	8.963486
15	0	8.942315	8.942437	8.942558	30	2	48	15	15	8.963601	8.963716	8.963832	30	2	48	15	15	8.963601	8.963716	8.963832
30	0	8.942679	8.942800	8.942921	15	3	73	30	30	8.963947	8.964063	8.964178	15	3	73	30	30	8.963947	8.964063	8.964178
45	0	8.943042	8.943163	8.943284	0	4	97	45	45	8.964293	8.964408	8.964524	0	4	97	45	45	8.964293	8.964408	8.964524
1	0	8.943404	8.943525	8.943646	45	1	24	16	0	8.964639	8.964754	8.964869	45	1	24	16	0	8.964639	8.964754	8.964869
15	0	8.943767	8.943888	8.944008	30	2	48	15	15	8.964984	8.965099	8.965214	30	2	48	15	15	8.964984	8.965099	8.965214
30	0	8.944129	8.944250	8.944370	15	3	72	30	30	8.965329	8.965444	8.965559	15	3	72	30	30	8.965329	8.965444	8.965559
45	0	8.944491	8.944611	8.944732	0	4	97	45	45	8.965674	8.965789	8.965904	0	4	97	45	45	8.965674	8.965789	8.965904
2	0	8.944852	8.944973	8.945093	45	1	24	17	0	8.966019	8.966134	8.966248	45	1	24	17	0	8.966019	8.966134	8.966248
15	0	8.945214	8.945334	8.945454	30	2	48	15	15	8.966363	8.966478	8.966593	30	2	48	15	15	8.966363	8.966478	8.966593
30	0	8.945574	8.945695	8.945815	15	3	72	30	30	8.966707	8.966822	8.966936	15	3	72	30	30	8.966707	8.966822	8.966936
45	0	8.945935	8.946055	8.946175	0	4	96	45	45	8.967051	8.967165	8.967280	0	4	96	45	45	8.967051	8.967165	8.967280
3	0	8.946295	8.946415	8.946536	45	1	24	18	0	8.967394	8.967509	8.967623	45	1	24	18	0	8.967394	8.967509	8.967623
15	0	8.946655	8.946775	8.946895	30	2	48	15	15	8.967738	8.967852	8.967966	30	2	48	15	15	8.967738	8.967852	8.967966
30	0	8.947015	8.947135	8.947255	15	3	72	30	30	8.968081	8.968195	8.968309	15	3	72	30	30	8.968081	8.968195	8.968309
45	0	8.947375	8.947494	8.947614	0	4	96	45	45	8.968423	8.968538	8.968652	0	4	96	45	45	8.968423	8.968538	8.968652
4	0	8.947734	8.947854	8.947973	45	1	24	19	0	8.968766	8.968880	8.968994	45	1	24	19	0	8.968766	8.968880	8.968994
15	0	8.948093	8.948212	8.948332	30	2	48	15	15	8.969108	8.969222	8.969336	30	2	48	15	15	8.969108	8.969222	8.969336
30	0	8.948451	8.948571	8.948690	15	3	72	30	30	8.969450	8.969564	8.969678	15	3	72	30	30	8.969450	8.969564	8.969678
45	0	8.948810	8.948929	8.949048	0	4	96	45	45	8.969792	8.969905	8.970019	0	4	96	45	45	8.969792	8.969905	8.970019
5	0	8.949168	8.949287	8.949406	45	1	24	20	0	8.970133	8.970247	8.970360	45	1	24	20	0	8.970133	8.970247	8.970360
15	0	8.949525	8.949644	8.949764	30	2	48	15	15	8.970478	8.970588	8.970701	30	2	48	15	15	8.970478	8.970588	8.970701
30	0	8.949883	8.950002	8.950121	15	3	71	30	30	8.970815	8.970929	8.971042	15	3	71	30	30	8.970815	8.970929	8.971042
45	0	8.950240	8.950359	8.950478	0	4	95	45	45	8.971156	8.971269	8.971383	0	4	95	45	45	8.971156	8.971269	8.971383
6	0	8.950597	8.950716	8.950834	45	1	24	21	0	8.971496	8.971609	8.971723	45	1	24	21	0	8.971496	8.971609	8.971723
15	0	8.950953	8.951072	8.951191	30	2	47	15	15	8.971836	8.971949	8.972063	30	2	47	15	15	8.971836	8.971949	8.972063
30	0	8.951310	8.951428	8.951547	15	3	71	30	30	8.972176	8.972289	8.972402	15	3	71	30	30	8.972176	8.972289	8.972402
45	0	8.951665	8.951784	8.951903	0	4	95	45	45	8.972515	8.972629	8.972742	0	4	95	45	45	8.972515	8.972629	8.972742
7	0	8.952021	8.952140	8.952258	45	1	24	22	0	8.972855	8.972968	8.973081	45	1	24	22	0	8.972855	8.972968	8.973081
15	0	8.952377	8.952495	8.952613	30	2	47	15	15	8.973194	8.973307	8.973420	30	2	47	15	15	8.973194	8.973307	8.973420
30	0	8.952732	8.952850	8.952968	15	3	71	30	30	8.973533	8.973645	8.973758	15	3	71	30	30	8.973533	8.973645	8.973758
45	0	8.953087	8.953205	8.953323	0	4	95	45	45	8.973871	8.973984	8.974096	0	4	95	45	45	8.973871	8.973984	8.974096
8	0	8.953441	8.953559	8.953677	45	1	24	23	0	8.974209	8.974322	8.974435	45	1	24	23	0	8.974209	8.974322	8.974435
15	0	8.953795	8.953913	8.954031	30	2	47	15	15	8.974547	8.974660	8.974772	30	2	47	15	15	8.974547	8.974660	8.974772
30	0	8.954149	8.954267	8.954385	15	3	71	30	30	8.974885	8.974998	8.975110	15	3	71	30	30	8.974885	8.974998	8.975110
45	0	8.954503	8.954621	8.954739	0	4	94	45	45	8.975223	8.975335	8.975447	0	4	94	45	45	8.975223	8.975335	8.975447
9	0	8.954856	8.954974	8.955092	45	1	24	24	0	8.975560	8.975672	8.975784	45	1	24	24	0	8.975560	8.975672	8.975784
15	0	8.955210	8.955327	8.955445	30	2	47	15	15	8.975897	8.976009	8.976121	30	2	47	15	15	8.975897	8.976009	8.976121
30	0	8.955562	8.955680	8.955797	15	3	71	30	30	8.976233	8.976346	8.976458	15	3	71	30	30	8.976233	8.976346	8.976458
45	0	8.955915	8.956032	8.956150	0	4	94	45	45	8.976570	8.976682	8.976794	0	4	94	45	45	8.976570	8.976682	8.976794
10	0	8.956267	8.956385	8.956502	45	1	23	25	0	8.976906	8.977018	8.977130	45	1	23	25	0	8.976906	8.977018	8.977130
15	0	8.956619	8.956737	8.956854	30	2	47	15	15	8.977242	8.977354	8.977466	30	2	47	15	15	8.977242	8.977354	8.977466
30	0	8.956971	8.957088	8.957205	15	3	70	30	30	8.977578	8.977690	8.977801	15	3	70	30	30	8.977578	8.977690	8.977801
45	0	8.957322	8.957440	8.957557	0	4	94	45	45	8.977913	8.978025	8.978137	0	4	94	45	45	8.977913	8.978025	8.978137
11	0	8.957674	8.957791	8.957908	45	1	23	26	0	8.978248	8.978360	8.978472	45	1	23	26	0	8.978248	8.978360	8.978472
15	0	8.958024	8.958141	8.958258	30	2	47	15	15	8.978583	8.978695	8.978806	30	2	47	15	15	8.978583	8.978695	8.978806
30	0	8.958375	8.958492	8.958609	15	3	70	30	30	8.978918	8.979029	8.979141	15	3	70	30	30	8.978918	8.979029	8.979141
45	0	8.958725	8.958842	8.958959	0	4	93	45	45	8.979252	8.979364	8.979475	0	4	93	45	45	8.979252	8.979364	8.979475
12	0	8.959075	8.959192	8.959309	45	1	23	27	0	8.979587	8.979698	8.979809	45	1	23	27	0	8.979587	8.979698	8.979809
15	0	8.959425	8.959542	8.959658	30	2	47	15	15	8.979920	8.980032	8.980143	30	2	47	15	15	8.979920	8.980032	8.980143
30	0	8.959775	8.959891	8.960008	15	3	70	30	30	8.980254	8.980365	8.980476	15	3	70	30	30	8.980254	8.980365	8.980476
45	0	8.960124	8.960240	8.960357	0	4	93	45	45	8.980587	8.980699	8.980810	0	4	93	45	45	8.980587	8.980699	8.980810
13	0	8.960473	8.960589	8.960705	45	1	23	28	0	8.980921	8.981032	8.981143	45	1	23	28	0	8.980921	8.981032	8.981143
15	0	8.960822	8.960938	8.961054	30	2	46	15	15	8.981254	8.981364	8.981475	30	2	46	15	15	8.981254	8.981364	8.981475
30	0	8.961170	8.961286	8.961402	15	3	70	30	30	8.981586	8.981697	8.981808	15	3	70	30	30	8.981586	8.981697	8.981808
45	0	8.961518	8.961634	8.961750	0	4	93	45	45	8.981919	8.982029	8.982140	0	4	93	45	45	8.981919	8.982029	8.982140
14	0	8.961866	8.961982	8.962098	45	1	23	29	0	8.982251	8.982361	8.982472	45	1	23	29	0	8.982251	8.982361	8.982472
15	0	8.962213	8.962329	8.962445	30	2	46	15	15	8.982583	8.982693	8.982804	30	2	46	15	15	8.982583	8.982693	8.982804
30	0	8.962561	8.962676	8.962792	15	3	69	30	30	8.982914	8.983025	8.983135	15	3	69	30	30	8.982914	8.983025	8.983135
45	0	8.962908	8.963023	8.963139	0	4	93	45	45	8.983246	8.983356	8.983467	0	4	93	45	45	8.983246	8.983356	8.983467
Minutes		Seconds		15" 10" 5"			Seconds		Minutes		Proport. parts.	Minutes		Seconds		15" 10" 5"				

LOGARITHMIC TANGENTS.

Tangent of 5 degrees, or Co-tangent of 95 degrees.			Seconds	Minutes	Proport. parts.	Tangent of 5 degrees, or Co-tangent of 95 degrees.			Seconds	Minutes	Proport. parts.
0'	5'	10'				0'	5'	10'			
983577	8.983687	8.983798	45	1"	22	9.003007	9.003112	9.003218	45	1"	21
983908	8.984018	8.984128	30	2.	44	9.003323	9.003429	9.003534	30	2.	42
984239	8.984349	8.984459	15	3.	66	9.003640	9.003745	9.003851	15	3.	63
984569	8.984679	8.984789	0 29	4.	88	9.003956	9.004062	9.004167	0 14	4.	84
984899	8.985009	8.985119	45	1 =	22	9.004272	9.004377	9.004483	45	1 =	21
985229	8.985339	8.985449	30	2.	44	9.004588	9.004693	9.004798	30	2.	42
985559	8.985669	8.985778	15	3.	66	9.004904	9.005009	9.005114	15	3.	63
985888	8.985998	8.986108	0 28	4.	88	9.005219	9.005324	9.005429	0 13	4.	84
986217	8.986327	8.986437	45	1 =	22	9.005534	9.005639	9.005744	45	1 =	21
986546	8.986656	8.986765	30	2.	44	9.005849	9.005954	9.006059	30	2.	42
986875	8.986965	8.987094	15	3.	66	9.006164	9.006269	9.006373	15	3.	63
987203	8.987313	8.987422	0 27	4.	88	9.006478	9.006583	9.006688	0 12	4.	84
987532	8.987641	8.987750	45	1 =	22	9.006792	9.006897	9.007002	45	1 =	21
987860	8.987969	8.988078	30	2.	44	9.007106	9.007211	9.007316	30	2.	42
988187	8.988297	8.988406	15	3.	65	9.007420	9.007525	9.007629	15	3.	63
988515	8.988624	8.988733	0 26	4.	87	9.007734	9.007838	9.007943	0 11	4.	84
988842	8.988951	8.989060	45	1 =	22	9.008047	9.008152	9.008256	45	1 =	21
989169	8.989278	8.989387	30	2.	44	9.008360	9.008465	9.008569	30	2.	42
989496	8.989605	8.989714	15	3.	65	9.008673	9.008777	9.008882	15	3.	63
989822	8.989931	8.990040	0 25	4.	87	9.008986	9.009090	9.009194	0 10	4.	83
990149	8.990257	8.990366	45	1 =	22	9.009298	9.009403	9.009507	45	1 =	21
990475	8.990583	8.990692	30	2.	43	9.009611	9.009715	9.009819	30	2.	42
990801	8.990909	8.991018	15	3.	65	9.009923	9.010027	9.010131	15	3.	62
991126	8.991235	8.991343	0 24	4.	87	9.010235	9.010338	9.010442	0 9	4.	83
991451	8.991560	8.991668	45	1 =	22	9.010546	9.010650	9.010754	45	1 =	21
991777	8.991865	8.991993	30	2.	43	9.010857	9.010961	9.011065	30	2.	41
992101	8.992210	8.992318	15	3.	65	9.011169	9.011272	9.011376	15	3.	62
992426	8.992534	8.992642	0 23	4.	87	9.011480	9.011583	9.011687	0 8	4.	83
992750	8.992858	8.992966	45	1 =	22	9.011790	9.011894	9.011997	45	1 =	21
993074	8.993182	8.993290	30	2.	43	9.012101	9.012204	9.012308	30	2.	41
993398	8.993506	8.993614	15	3.	65	9.012411	9.012514	9.012618	15	3.	62
993722	8.993830	8.993938	0 22	4.	86	9.012721	9.012824	9.012928	0 7	4.	83
994045	8.994153	8.994261	45	1 =	22	9.013031	9.013134	9.013237	45	1 =	21
994369	8.994476	8.994584	30	2.	43	9.013341	9.013444	9.013547	30	2.	41
994692	8.994799	8.994907	15	3.	65	9.013650	9.013753	9.013856	15	3.	62
995014	8.995122	8.995229	0 21	4.	86	9.013959	9.014062	9.014165	0 6	4.	82
995337	8.995444	8.995552	45	1 =	21	9.014268	9.014371	9.014474	45	1 =	21
995659	8.995706	8.995874	30	2.	43	9.014577	9.014680	9.014783	30	2.	41
995981	8.996088	8.996196	15	3.	64	9.014886	9.014988	9.015091	15	3.	62
996303	8.996410	8.996517	0 20	4.	86	9.015194	9.015297	9.015399	0 5	4.	82
996624	8.996731	8.996839	45	1 =	21	9.015502	9.015605	9.015707	45	1 =	21
996946	8.997053	8.997160	30	2.	43	9.015810	9.015913	9.016015	30	2.	41
997267	8.997374	8.997481	15	3.	64	9.016118	9.016220	9.016323	15	3.	62
997588	8.997694	8.997801	0 19	4.	86	9.016425	9.016528	9.016630	0 4	4.	82
997908	8.998015	8.998122	45	1 =	21	9.016733	9.016835	9.016937	45	1 =	20
998229	8.998335	8.998442	30	2.	43	9.017040	9.017142	9.017244	30	2.	41
998549	8.998655	8.998762	15	3.	64	9.017346	9.017449	9.017551	15	3.	61
998869	8.998975	8.999082	0 18	4.	85	9.017653	9.017755	9.017857	0 3	4.	82
999188	8.999295	8.999401	45	1 =	21	9.017959	9.018062	9.018164	45	1 =	20
999508	8.999614	8.999721	30	2.	43	9.018266	9.018368	9.018470	30	2.	41
999827	8.999933	9.000040	15	3.	64	9.018572	9.018674	9.018776	15	3.	61
000146	9.000252	9.000359	0 17	4.	85	9.018878	9.018979	9.019081	0 2	4.	82
000465	9.000571	9.000677	45	1 =	21	9.019183	9.019285	9.019387	45	1 =	20
000783	9.000889	9.000996	30	2.	42	9.019488	9.019590	9.019692	30	2.	41
001102	9.001208	9.001314	15	3.	64	9.019794	9.019895	9.019997	15	3.	61
001420	9.001526	9.001632	0 16	4.	85	9.020099	9.020200	9.020302	0 1	4.	81
001738	9.001843	9.001949	45	1 =	21	9.020403	9.020505	9.020606	45	1 =	20
002055	9.002161	9.002267	30	2.	42	9.020708	9.020809	9.020911	30	2.	41
002373	9.002478	9.002584	15	3.	63	9.021012	9.021114	9.021215	15	3.	61
002690	9.002795	9.002901	0 15	4.	85	9.021316	9.021418	9.021519	0 0	4.	81
15"	10"	5"				15"	10"	5"			
Co-tangent of 84 degrees, or Tangent of 174 degrees.			Seconds	Minutes	Proport. parts.	Co-tangent of 84 degrees, or Tangent of 174 degrees.			Seconds	Minutes	Proport. parts.

LOGARITHMIC TANGENTS.

Minutes		Seconds		Tangent of 6 degrees, or Co-tangent of 96 degrees.			Seconds		Minutes		Proport. parts.	Minutes		Seconds		Tangent of 6 degrees, or Co-tangent of 96 degrees.			Seconds		Minutes				
				0"	5"	10"												0"	5"	10"					
0	0	0	0	9.021620	9.021722	9.021823	45	1"	20	15	0	0	0	0	9.039485	9.039582	9.039679	45	15	0	0				
15	0	15	0	9.021924	9.022025	9.022126	30	2.	40	15	15	15	0	15	9.039777	9.039874	9.039971	30	30	15	15				
30	0	30	0	9.022227	9.022329	9.022430	15	3.	61	30	30	30	0	30	9.040068	9.040165	9.040262	15	45	30	30				
45	0	45	0	9.022531	9.022632	9.022733	0	59	4.	81	45	45	0	45	9.040359	9.040457	9.040554	0	44	45	45				
1	0	1	0	9.022834	9.022935	9.023036	45	1	20	16	0	16	0	16	9.040651	9.040748	9.040845	45	15	16	0				
15	0	15	0	9.023137	9.023238	9.023339	30	2.	40	15	15	15	0	15	9.040942	9.041039	9.041135	30	30	15	15				
30	0	30	0	9.023439	9.023540	9.023641	15	3.	60	30	30	30	0	30	9.041232	9.041329	9.041426	15	45	30	30				
45	0	45	0	9.023742	9.023843	9.023943	0	58	4.	81	45	45	0	45	9.041523	9.041620	9.041717	0	44	45	45				
2	0	2	0	9.024044	9.024145	9.024246	45	1	20	17	0	17	0	17	9.041813	9.041910	9.042007	45	15	17	0				
15	0	15	0	9.024346	9.024447	9.024547	30	2.	40	15	15	15	0	15	9.042104	9.042200	9.042297	30	30	15	15				
30	0	30	0	9.024648	9.024749	9.024849	15	3.	60	30	30	30	0	30	9.042394	9.042490	9.042587	15	45	30	30				
45	0	45	0	9.024950	9.025050	9.025151	0	57	4.	80	45	45	0	45	9.042684	9.042780	9.042877	0	44	45	45				
3	0	3	0	9.025251	9.025352	9.025452	45	1	20	18	0	18	0	18	9.042973	9.043070	9.043166	45	15	18	0				
15	0	15	0	9.025552	9.025653	9.025753	30	2.	40	15	15	15	0	15	9.043263	9.043359	9.043456	30	30	15	15				
30	0	30	0	9.025853	9.025954	9.026054	15	3.	60	30	30	30	0	30	9.043552	9.043648	9.043745	15	45	30	30				
45	0	45	0	9.026154	9.026254	9.026355	0	56	4.	80	45	45	0	45	9.043841	9.043937	9.044034	0	44	45	45				
4	0	4	0	9.026455	9.026555	9.026655	45	1	20	19	0	19	0	19	9.044130	9.044226	9.044322	45	15	19	0				
15	0	15	0	9.026755	9.026855	9.026955	30	2.	40	15	15	15	0	15	9.044419	9.044515	9.044611	30	30	15	15				
30	0	30	0	9.027055	9.027155	9.027255	15	3.	60	30	30	30	0	30	9.044707	9.044803	9.044899	15	45	30	30				
45	0	45	0	9.027355	9.027455	9.027555	0	55	4.	80	45	45	0	45	9.044995	9.045092	9.045188	0	44	45	45				
5	0	5	0	9.027655	9.027755	9.027855	45	1	20	20	0	20	0	20	9.045284	9.045380	9.045476	45	15	20	0				
15	0	15	0	9.027955	9.028055	9.028155	30	2.	40	15	15	15	0	15	9.045572	9.045668	9.045763	30	30	15	15				
30	0	30	0	9.028254	9.028354	9.028454	15	3.	60	30	30	30	0	30	9.045859	9.045955	9.046051	15	45	30	30				
45	0	45	0	9.028553	9.028653	9.028753	0	54	4.	80	45	45	0	45	9.046147	9.046243	9.046339	0	44	45	45				
6	0	6	0	9.028852	9.028952	9.029052	45	1	20	21	0	21	0	21	9.046434	9.046530	9.046626	45	15	21	0				
15	0	15	0	9.029151	9.029251	9.029350	30	2.	40	15	15	15	0	15	9.046722	9.046817	9.046913	30	30	15	15				
30	0	30	0	9.029450	9.029549	9.029649	15	3.	60	30	30	30	0	30	9.047009	9.047104	9.047200	15	45	30	30				
45	0	45	0	9.029748	9.029848	9.029947	0	53	4.	80	45	45	0	45	9.047296	9.047391	9.047487	0	44	45	45				
7	0	7	0	9.030046	9.030146	9.030245	45	1	20	22	0	22	0	22	9.047582	9.047678	9.047773	45	15	22	0				
15	0	15	0	9.030344	9.030444	9.030543	30	2.	40	15	15	15	0	15	9.047869	9.047964	9.048060	30	30	15	15				
30	0	30	0	9.030642	9.030742	9.030841	15	3.	60	30	30	30	0	30	9.048155	9.048250	9.048346	15	45	30	30				
45	0	45	0	9.030940	9.031039	9.031138	0	52	4.	79	45	45	0	45	9.048441	9.048536	9.048632	0	44	45	45				
8	0	8	0	9.031237	9.031336	9.031435	45	1	20	23	0	23	0	23	9.048727	9.048822	9.048918	45	15	23	0				
15	0	15	0	9.031535	9.031634	9.031733	30	2.	40	15	15	15	0	15	9.049013	9.049108	9.049203	30	30	15	15				
30	0	30	0	9.031832	9.031930	9.032029	15	3.	59	30	30	30	0	30	9.049298	9.049393	9.049489	15	45	30	30				
45	0	45	0	9.032128	9.032227	9.032326	0	51	4.	79	45	45	0	45	9.049584	9.049679	9.049774	0	44	45	45				
9	0	9	0	9.032425	9.032524	9.032623	45	1	20	24	0	24	0	24	9.049869	9.049964	9.050059	45	15	24	0				
15	0	15	0	9.032721	9.032820	9.032919	30	2.	39	15	15	15	0	15	9.050154	9.050249	9.050344	30	30	15	15				
30	0	30	0	9.033018	9.033116	9.033215	15	3.	59	30	30	30	0	30	9.050439	9.050534	9.050629	15	45	30	30				
45	0	45	0	9.033314	9.033412	9.033511	0	50	4.	79	45	45	0	45	9.050723	9.050818	9.050913	0	44	45	45				
10	0	10	0	9.033609	9.033708	9.033806	45	1	20	25	0	25	0	25	9.051008	9.051103	9.051197	45	15	25	0				
15	0	15	0	9.033905	9.034004	9.034102	30	2.	39	15	15	15	0	15	9.051292	9.051387	9.051482	30	30	15	15				
30	0	30	0	9.034200	9.034299	9.034397	15	3.	59	30	30	30	0	30	9.051576	9.051671	9.051766	15	45	30	30				
45	0	45	0	9.034496	9.034594	9.034692	0	49	4.	79	45	45	0	45	9.051860	9.051955	9.052049	0	44	45	45				
11	0	11	0	9.034791	9.034889	9.034987	45	1	20	26	0	26	0	26	9.052144	9.052239	9.052333	45	15	26	0				
15	0	15	0	9.035086	9.035184	9.035282	30	2.	39	15	15	15	0	15	9.052428	9.052522	9.052616	30	30	15	15				
30	0	30	0	9.035380	9.035478	9.035576	15	3.	59	30	30	30	0	30	9.052711	9.052805	9.052900	15	45	30	30				
45	0	45	0	9.035675	9.035773	9.035871	0	48	4.	79	45	45	0	45	9.052994	9.053088	9.053183	0	44	45	45				
12	0	12	0	9.035969	9.036067	9.036165	45	1	20	27	0	27	0	27	9.053277	9.053371	9.053466	45	15	27	0				
15	0	15	0	9.036263	9.036361	9.036459	30	2.	39	15	15	15	0	15	9.053560	9.053654	9.053748	30	30	15	15				
30	0	30	0	9.036557	9.036655	9.036753	15	3.	59	30	30	30	0	30	9.053843	9.053937	9.054031	15	45	30	30				
45	0	45	0	9.036850	9.036948	9.037046	0	47	4.	78	45	45	0	45	9.054125	9.054219	9.054313	0	44	45	45				
13	0	13	0	9.037144	9.037242	9.037339	45	1	20	28	0	28	0	28	9.054407	9.054502	9.054596	45	15	28	0				
15	0	15	0	9.037437	9.037535	9.037633	30	2.	39	15	15	15	0	15	9.054690	9.054784	9.054878	30	30	15	15				
30	0	30	0	9.037730	9.037828	9.037926	15	3.	59	30	30	30	0	30	9.054972	9.055065	9.055159	15	45	30	30				
45	0	45	0	9.038023	9.038121	9.038218	0	46	4.	78	45	45	0	45	9.055253	9.055347	9.055441	0	44	45	45				
14	0	14	0	9.038316	9.038413	9.038511	45	1	19	29	0	29	0	29	9.055535	9.055629	9.055723	45	15	29	0				
15	0	15	0	9.038608	9.038706	9.038803	30	2.	39	15	15	15	0	15	9.055816	9.055910	9.056004	30	30	15	15				
30	0	30	0	9.038901	9.038998	9.039096	15	3.	58	30	30	30	0	30	9.056098	9.056191	9.056285	15	45	30	30				
45	0	45	0	9.039193	9.039290	9.039388	0	45	4.	78	45	45	0	45	9.056379	9.056472	9.056566	0	44	45	45				
Minutes		Seconds		15"			10"			5"			Minutes		Seconds		15"			10"			5"		
				Co-tangent of 83 degrees, or Tangent of 173 degrees.							Proport. parts.						Co-tangent of 83 degrees, or Tangent of 173 degrees.								

LOGARITHMIC TANGENTS.

Tangent of 6 degrees, or Co-tangent of 96 degrees.				Tangent of 6 degrees, or Co-tangent of 96 degrees.			
5"	10"	Seconds	Minutes	0"	5"	10"	Seconds
660	9.056753	9.056847	45	1"	19		
940	9.057034	9.057127	30	2.	37		
221	9.057314	9.057408	15	3.	56		
501	9.057595	9.057688	0	4.	75		
781	9.057875	9.057968	45	1 = 19			
061	9.058155	9.058248	30	2.	37		
341	9.058434	9.058528	15	3.	56		
621	9.058714	9.058807	0	4.	75		
900	9.058993	9.059086	45	1 = 19			
180	9.059273	9.059366	30	2.	37		
459	9.059552	9.059645	15	3.	56		
738	9.059831	9.059924	0	4.	74		
016	9.060109	9.060202	45	1 = 19			
295	9.060388	9.060481	30	2.	37		
573	9.060666	9.060759	15	3.	56		
852	9.060944	9.061037	0	4.	74		
130	9.061222	9.061315	45	1 = 19			
408	9.061500	9.061593	30	2.	37		
685	9.061778	9.061870	15	3.	56		
963	9.062055	9.062148	0	4.	74		
240	9.062333	9.062425	45	1 = 18			
518	9.062610	9.062702	30	2.	37		
795	9.062887	9.062979	15	3.	55		
072	9.063164	9.063256	0	4.	74		
348	9.063440	9.063533	45	1 = 18			
625	9.063717	9.063809	30	2.	37		
901	9.063993	9.064085	15	3.	55		
177	9.064269	9.064361	0	4.	74		
453	9.064545	9.064637	45	1 = 18			
729	9.064821	9.064913	30	2.	37		
005	9.065097	9.065189	15	3.	55		
280	9.065372	9.065464	0	4.	73		
556	9.065647	9.065739	45	1 = 18			
831	9.065923	9.066014	30	2.	37		
106	9.066197	9.066289	15	3.	55		
381	9.066472	9.066564	0	4.	73		
655	9.066747	9.066838	45	1 = 18			
930	9.067021	9.067113	30	2.	37		
204	9.067296	9.067387	15	3.	55		
478	9.067570	9.067661	0	4.	73		
752	9.067844	9.067935	45	1 = 18			
026	9.068117	9.068209	30	2.	36		
300	9.068391	9.068482	15	3.	55		
573	9.068664	9.068755	0	4.	73		
847	9.068938	9.069029	45	1 = 18			
120	9.069211	9.069302	30	2.	36		
393	9.069484	9.069575	15	3.	55		
665	9.069756	9.069847	0	4.	73		
938	9.070029	9.070120	45	1 = 18			
211	9.070301	9.070392	30	2.	36		
483	9.070574	9.070664	15	3.	54		
755	9.070846	9.070936	0	4.	73		
027	9.071118	9.071208	45	1 = 18			
299	9.071389	9.071480	30	2.	36		
570	9.071661	9.071752	15	3.	54		
842	9.071932	9.072023	0	4.	72		
113	9.072204	9.072294	45	1 = 18			
384	9.072475	9.072565	30	2.	36		
655	9.072746	9.072836	15	3.	54		
926	9.073017	9.073107	0	4.	72		
10"	5"	Seconds	Minutes	15"	10"	5"	Seconds
Tangent of 83 degrees, or Co-tangent of 7 degrees.				Tangent of 83 degrees, or Co-tangent of 7 degrees.			
45	0	9.073197	9.073287	9.073377	45	1" = 18	
15	9.073467	9.073558	9.073648	30	2.	36	
30	9.073738	9.073828	9.073918	15	3.	54	
45	9.074008	9.074098	9.074188	0	4.	72	
46	0	9.074278	9.074368	9.074458	45	1 = 18	
15	9.074548	9.074638	9.074728	30	2.	36	
30	9.074817	9.074907	9.074997	15	3.	54	
45	9.075087	9.075177	9.075267	0	4.	72	
47	0	9.075356	9.075446	9.075536	45	1 = 18	
15	9.075626	9.075715	9.075805	30	2.	36	
30	9.075895	9.075984	9.076074	15	3.	54	
45	9.076163	9.076253	9.076343	0	4.	72	
48	0	9.076432	9.076522	9.076611	45	1 = 18	
15	9.076701	9.076790	9.076880	30	2.	36	
30	9.076969	9.077059	9.077148	15	3.	54	
45	9.077237	9.077327	9.077416	0	4.	72	
49	0	9.077505	9.077595	9.077684	45	1 = 18	
15	9.077773	9.077863	9.077952	30	2.	36	
30	9.078041	9.078130	9.078219	15	3.	54	
45	9.078309	9.078398	9.078487	0	4.	71	
50	0	9.078576	9.078665	9.078754	45	1 = 18	
15	9.078843	9.078932	9.079021	30	2.	36	
30	9.079110	9.079199	9.079288	15	3.	53	
45	9.079377	9.079466	9.079555	0	4.	71	
51	0	9.079644	9.079733	9.079822	45	1 = 18	
15	9.079911	9.080000	9.080088	30	2.	36	
30	9.080177	9.080266	9.080355	15	3.	53	
45	9.080443	9.080532	9.080621	0	4.	71	
52	0	9.080710	9.080798	9.080887	45	1 = 18	
15	9.080976	9.081064	9.081153	30	2.	35	
30	9.081241	9.081330	9.081419	15	3.	53	
45	9.081507	9.081596	9.081684	0	4.	71	
53	0	9.081773	9.081861	9.081950	45	1 = 18	
15	9.082038	9.082126	9.082215	30	2.	35	
30	9.082303	9.082392	9.082480	15	3.	53	
45	9.082568	9.082657	9.082745	0	4.	71	
54	0	9.082833	9.082921	9.083010	45	1 = 18	
15	9.083098	9.083186	9.083274	30	2.	35	
30	9.083362	9.083451	9.083539	15	3.	53	
45	9.083627	9.083715	9.083803	0	4.	71	
55	0	9.083891	9.083979	9.084067	45	1 = 18	
15	9.084155	9.084243	9.084331	30	2.	35	
30	9.084419	9.084507	9.084595	15	3.	53	
45	9.084683	9.084771	9.084859	0	4.	70	
56	0	9.084947	9.085034	9.085122	45	1 = 18	
15	9.085210	9.085298	9.085386	30	2.	35	
30	9.085473	9.085561	9.085649	15	3.	53	
45	9.085737	9.085824	9.085912	0	4.	70	
57	0	9.086000	9.086087	9.086175	45	1 = 18	
15	9.086262	9.086350	9.086438	30	2.	35	
30	9.086525	9.086613	9.086700	15	3.	53	
45	9.086788	9.086875	9.086963	0	4.	70	
58	0	9.087050	9.087138	9.087225	45	1 = 18	
15	9.087312	9.087400	9.087487	30	2.	35	
30	9.087574	9.087662	9.087749	15	3.	52	
45	9.087836	9.087924	9.088011	0	4.	70	
59	0	9.088098	9.088185	9.088273	45	1 = 18	
15	9.088360	9.088447	9.088534	30	2.	35	
30	9.088621	9.088708	9.088796	15	3.	52	
45	9.088883	9.088970	9.089057	0	4.	70	

LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 7 degrees, or Co-tangent of 97 degrees.			Seconds	Minutes	Proport. parts.	Minutes	Seconds	Tangent of 7 degrees, or Co-tangent of 97 degrees.			Seconds
		0'	5'	10'						0'	5'	10'	
0	0	9.089144	9.089231	9.089318	45	1	17	15	0	9.104542	9.104626	9.104710	45
	15	9.089405	9.089492	9.089579	30		35		15	9.104794	9.104878	9.104962	30
	30	9.089666	9.089753	9.089840	15		52		30	9.105046	9.105130	9.105214	15
	45	9.089926	9.090013	9.090100	0	59	79		45	9.105298	9.105382	9.105466	0
1	0	9.090187	9.090274	9.090361	45	1	17	16	0	9.105550	9.105634	9.105718	45
	15	9.090447	9.090534	9.090621	30		35		15	9.105802	9.105885	9.105969	30
	30	9.090708	9.090794	9.090881	15		52		30	9.106053	9.106137	9.106221	15
	45	9.090968	9.091054	9.091141	0	58	69		45	9.106305	9.106388	9.106472	0
2	0	9.091228	9.091314	9.091401	45	1	17	17	0	9.106556	9.106639	9.106723	45
	15	9.091488	9.091574	9.091661	30		35		15	9.106807	9.106890	9.106974	30
	30	9.091747	9.091834	9.091920	15		52		30	9.107058	9.107141	9.107225	15
	45	9.092007	9.092093	9.092180	0	57	69		45	9.107309	9.107392	9.107476	0
3	0	9.092266	9.092353	9.092439	45	1	17	18	0	9.107559	9.107643	9.107726	45
	15	9.092525	9.092612	9.092698	30		35		15	9.107810	9.107893	9.107977	30
	30	9.092784	9.092871	9.092957	15		52		30	9.108060	9.108144	9.108227	15
	45	9.093043	9.093130	9.093216	0	56	69		45	9.108310	9.108394	9.108477	0
4	0	9.093302	9.093388	9.093474	45	1	17	19	0	9.108560	9.108644	9.108727	45
	15	9.093561	9.093647	9.093733	30		34		15	9.108810	9.108894	9.108977	30
	30	9.093819	9.093905	9.093991	15		52		30	9.109060	9.109143	9.109227	15
	45	9.094077	9.094163	9.094250	0	55	69		45	9.109310	9.109393	9.109476	0
5	0	9.094336	9.094422	9.094508	45	1	17	20	0	9.109559	9.109643	9.109726	45
	15	9.094594	9.094680	9.094766	30		34		15	9.109809	9.109892	9.109975	30
	30	9.094851	9.094937	9.095023	15		52		30	9.110058	9.110141	9.110224	15
	45	9.095109	9.095195	9.095281	0	54	69		45	9.110307	9.110390	9.110473	0
6	0	9.095367	9.095453	9.095538	45	1	17	21	0	9.110556	9.110639	9.110722	45
	15	9.095624	9.095710	9.095796	30		34		15	9.110805	9.110888	9.110971	30
	30	9.095881	9.095967	9.096053	15		51		30	9.111054	9.111137	9.111220	15
	45	9.096139	9.096224	9.096310	0	53	69		45	9.111302	9.111385	9.111468	0
7	0	9.096396	9.096481	9.096567	45	1	17	22	0	9.111551	9.111634	9.111716	45
	15	9.096652	9.096738	9.096824	30		34		15	9.111799	9.111882	9.111965	30
	30	9.096909	9.096995	9.097080	15		51		30	9.112047	9.112130	9.112213	15
	45	9.097166	9.097251	9.097337	0	52	68		45	9.112295	9.112378	9.112461	0
8	0	9.097422	9.097507	9.097593	45	1	17	23	0	9.112543	9.112626	9.112708	45
	15	9.097678	9.097764	9.097849	30		34		15	9.112791	9.112873	9.112956	30
	30	9.097934	9.098020	9.098105	15		51		30	9.113039	9.113121	9.113204	15
	45	9.098190	9.098276	9.098361	0	51	68		45	9.113286	9.113368	9.113451	0
9	0	9.098446	9.098531	9.098617	45	1	17	24	0	9.113533	9.113616	9.113698	45
	15	9.098702	9.098787	9.098872	30		34		15	9.113781	9.113863	9.113945	30
	30	9.098957	9.099042	9.099128	15		51		30	9.114028	9.114110	9.114192	15
	45	9.099213	9.099298	9.099383	0	50	68		45	9.114275	9.114357	9.114439	0
10	0	9.099468	9.099553	9.099638	45	1	17	25	0	9.114521	9.114604	9.114686	45
	15	9.099723	9.099808	9.099893	30		34		15	9.114768	9.114850	9.114932	30
	30	9.099978	9.100063	9.100148	15		51		30	9.115015	9.115097	9.115179	15
	45	9.100233	9.100318	9.100402	0	49	68		45	9.115261	9.115343	9.115425	0
11	0	9.100487	9.100572	9.100657	45	1	17	26	0	9.115507	9.115589	9.115671	45
	15	9.100742	9.100827	9.100911	30		34		15	9.115753	9.115835	9.115917	30
	30	9.100996	9.101081	9.101166	15		51		30	9.115999	9.116081	9.116163	15
	45	9.101250	9.101335	9.101420	0	48	68		45	9.116245	9.116327	9.116409	0
12	0	9.101504	9.101589	9.101674	45	1	17	27	0	9.116491	9.116573	9.116655	45
	15	9.101758	9.101843	9.101928	30		34		15	9.116737	9.116818	9.116900	30
	30	9.102012	9.102097	9.102181	15		51		30	9.116982	9.117064	9.117146	15
	45	9.102266	9.102350	9.102435	0	47	68		45	9.117227	9.117309	9.117391	0
13	0	9.102519	9.102604	9.102688	45	1	17	28	0	9.117472	9.117554	9.117636	45
	15	9.102773	9.102857	9.102941	30		34		15	9.117718	9.117799	9.117881	30
	30	9.103026	9.103110	9.103195	15		51		30	9.117962	9.118044	9.118126	15
	45	9.103279	9.103363	9.103447	0	46	68		45	9.118207	9.118289	9.118370	0
14	0	9.103532	9.103616	9.103700	45	1	17	29	0	9.118452	9.118533	9.118615	45
	15	9.103785	9.103869	9.103953	30		34		15	9.118696	9.118778	9.118859	30
	30	9.104037	9.104121	9.104206	15		51		30	9.118941	9.119022	9.119104	15
	45	9.104290	9.104374	9.104458	0	45	67		45	9.119185	9.119266	9.119348	0
Minutes	Seconds	15"	10"	5"	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15"	10"	5"	Seconds
		Co-tangent of 82 degrees, or Tangent of 172 degrees.								Co-tangent of 82 degrees, or Tangent of 172 degrees.			

LOGARITHMIC TANGENTS.

Tangent of 7 degrees, or Co-tangent of 97 degrees.			Seconds	Minutes	Proport. parts.	Tangent of 7 degrees, or Co-tangent of 97 degrees.			Seconds	Minutes	Proport. parts.		
0"	5"	10"				0"	5"	10"					
119429	9.119510	9.119592	45		1" = 16	45	9.133839	9.133918	9.133997	45	1" = 16		
119673	9.119754	9.119836	30		2. 33	15	9.134075	9.134154	9.134233	30	2. 31		
119917	9.119998	9.120079	15		3. 49	30	9.134312	9.134390	9.134469	15	3. 47		
120161	9.120242	9.120323	0	29	4. 65	45	9.134548	9.134626	9.134705	0	14 4. 63		
120404	9.120485	9.120567	45		1 = 16	46	9.134784	9.134862	9.134941	45	1 = 16		
120648	9.120729	9.120810	30		2. 32	15	9.135019	9.135098	9.135177	30	2. 31		
120891	9.120972	9.121053	15		3. 49	30	9.135255	9.135334	9.135412	15	3. 47		
121134	9.121215	9.121296	0	28	4. 65	45	9.135491	9.135569	9.135648	0	13 4. 63		
121377	9.121458	9.121539	45		1 = 16	47	9.135726	9.135805	9.135883	45	1 = 16		
121620	9.121701	9.121782	30		2. 32	15	9.135961	9.136040	9.136118	30	2. 31		
121863	9.121944	9.122025	15		3. 49	30	9.136197	9.136275	9.136353	15	3. 47		
122106	9.122187	9.122267	0	27	4. 65	45	9.136432	9.136510	9.136588	0	12 4. 63		
122348	9.122429	9.122510	45		1 = 16	48	9.136667	9.136745	9.136823	45	1 = 16		
122591	9.122671	9.122752	30		2. 32	15	9.136901	9.136980	9.137058	30	2. 31		
122833	9.122914	9.122994	15		3. 48	30	9.137136	9.137214	9.137293	15	3. 47		
123075	9.123156	9.123236	0	26	4. 65	45	9.137371	9.137449	9.137527	0	11 4. 63		
123317	9.123398	9.123478	45		1 = 16	49	9.137605	9.137683	9.137761	45	1 = 16		
123559	9.123640	9.123720	30		2. 32	15	9.137840	9.137918	9.137996	30	2. 31		
123801	9.123881	9.123962	15		3. 48	30	9.138074	9.138152	9.138230	15	3. 47		
124042	9.124123	9.124203	0	25	4. 64	45	9.138308	9.138386	9.138464	0	10 4. 62		
124284	9.124364	9.124445	45		1 = 16	50	9.138542	9.138620	9.138698	45	1 = 16		
124525	9.124606	9.124686	30		2. 32	15	9.138776	9.138854	9.138931	30	2. 31		
124767	9.124847	9.124927	15		3. 48	30	9.139009	9.139087	9.139165	15	3. 47		
125008	9.125088	9.125168	0	24	4. 64	45	9.139243	9.139321	9.139399	0	9 4. 62		
125249	9.125329	9.125409	45		1 = 16	51	9.139476	9.139554	9.139632	45	1 = 16		
125489	9.125570	9.125650	30		2. 32	15	9.139710	9.139788	9.139865	30	2. 31		
125730	9.125810	9.125891	15		3. 48	30	9.139943	9.140021	9.140099	15	3. 47		
125971	9.126051	9.126131	0	23	4. 64	45	9.140176	9.140254	9.140332	0	8 4. 62		
126211	9.126291	9.126371	45		1 = 16	52	9.140409	9.140487	9.140564	45	1 = 16		
126452	9.126532	9.126612	30		2. 32	15	9.140642	9.140720	9.140797	30	2. 31		
126692	9.126772	9.126852	15		3. 48	30	9.140875	9.140952	9.141030	15	3. 47		
126932	9.127012	9.127092	0	22	4. 64	45	9.141108	9.141185	9.141263	0	7 4. 62		
127172	9.127252	9.127332	45		1 = 16	53	9.141340	9.141418	9.141495	45	1 = 15		
127412	9.127492	9.127571	30		2. 32	15	9.141572	9.141650	9.141727	30	2. 31		
127651	9.127731	9.127811	15		3. 48	30	9.141805	9.141882	9.141960	15	3. 46		
127891	9.127971	9.128051	0	21	4. 64	45	9.142037	9.142114	9.142192	0	6 4. 62		
128130	9.128210	9.128290	45		1 = 16	54	9.142269	9.142346	9.142424	45	1 = 15		
128370	9.128449	9.128529	30		2. 32	15	9.142501	9.142578	9.142655	30	2. 31		
128609	9.128689	9.128768	15		3. 48	30	9.142733	9.142810	9.142887	15	3. 46		
128848	9.128928	9.129007	0	20	4. 64	45	9.142964	9.143042	9.143119	0	5 4. 62		
129087	9.129166	9.129246	45		1 = 16	55	9.143196	9.143273	9.143350	45	1 = 15		
129326	9.129405	9.129485	30		2. 32	15	9.143427	9.143505	9.143582	30	2. 31		
129564	9.129644	9.129723	15		3. 48	30	9.143659	9.143736	9.143813	15	3. 46		
129803	9.129882	9.129962	0	19	4. 64	45	9.143890	9.143967	9.144044	0	4 4. 62		
130041	9.130121	9.130200	45		1 = 16	56	9.144121	9.144198	9.144275	45	1 = 15		
130280	9.130359	9.130438	30		2. 32	15	9.144352	9.144429	9.144506	30	2. 31		
130518	9.130597	9.130677	15		3. 48	30	9.144583	9.144660	9.144737	15	3. 46		
130756	9.130835	9.130914	0	18	4. 63	45	9.144814	9.144890	9.144967	0	3 4. 62		
130994	9.131073	9.131152	45		1 = 16	57	9.145044	9.145121	9.145198	45	1 = 15		
131232	9.131311	9.131390	30		2. 32	15	9.145275	9.145352	9.145428	30	2. 31		
131469	9.131548	9.131628	15		3. 48	30	9.145505	9.145582	9.145659	15	3. 46		
131707	9.131786	9.131865	0	17	4. 63	45	9.145735	9.145812	9.145889	0	2 4. 61		
131944	9.132023	9.132102	45		1 = 16	58	9.145966	9.146042	9.146119	45	1 = 15		
132182	9.132261	9.132340	30		2. 32	15	9.146196	9.146272	9.146349	30	2. 31		
132419	9.132498	9.132577	15		3. 47	30	9.146426	9.146502	9.146579	15	3. 46		
132656	9.132735	9.132814	0	16	4. 63	45	9.146655	9.146732	9.146808	0	1 4. 61		
132893	9.132972	9.133051	45		1 = 16	59	9.146885	9.146962	9.147038	45	1 = 15		
133129	9.133208	9.133287	30		2. 32	15	9.147115	9.147191	9.147268	30	2. 31		
133366	9.133445	9.133524	15		3. 47	30	9.147344	9.147420	9.147497	15	3. 46		
133603	9.133682	9.133760	0	15	4. 63	45	9.147573	9.147650	9.147726	0	0 4. 61		
15"	10"	5"	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15"	10"	5"	Seconds	Minutes	Proport. parts.
Tangent of 82 degrees, or Tangent of 172 degrees.						Co-tangent of 82 degrees, or Tangent of 172 degrees.							

TABLE XXXVII.

LOGARITHMIC TANGENTS.

Minutes		Seconds		Tangent of 8 degrees, or Co-tangent of 98 degrees.			Seconds		Minutes		Proport. parts.	Minutes		Seconds		Tangent of 8 degrees, or Co-tangent of 98 degrees.			Seconds		Minutes			
				0"	5"	10"												0"	5"	10"				
0	0	9.147803	9.147879	9.147955	45	1" = 15	15	0	9.161347	9.161422	9.161496	4	15	0	9.161570	9.161644	9.161718	4	15	0	9.161792	9.161866	9.161940	4
15	0	9.148032	9.148108	9.148184	30	2. 31	15	15	9.161792	9.161866	9.161940	4	30	15	9.162014	9.162088	9.162162	4	30	15	9.162236	9.162310	9.162384	4
30	0	9.148261	9.148337	9.148413	15	3. 46	15	30	9.162236	9.162310	9.162384	4	45	30	9.162458	9.162532	9.162606	4	45	30	9.162680	9.162754	9.162828	4
45	0	9.148490	9.148566	9.148642	0	4. 61	0	45	9.162680	9.162754	9.162828	4	0	45	9.162902	9.162976	9.163050	4	0	45	9.163171	9.163245	9.163319	4
1	0	9.148718	9.148793	9.148871	45	1 = 15	16	0	9.163171	9.163245	9.163319	4	15	0	9.163348	9.163422	9.163496	4	15	0	9.163667	9.163741	9.163815	4
15	0	9.148947	9.149022	9.149099	30	2. 30	15	15	9.163667	9.163741	9.163815	4	30	15	9.163861	9.163935	9.164009	4	30	15	9.164229	9.164303	9.164377	4
30	0	9.149175	9.149252	9.149328	15	3. 46	15	30	9.164229	9.164303	9.164377	4	45	30	9.164459	9.164533	9.164607	4	45	30	9.164671	9.164745	9.164818	4
45	0	9.149404	9.149480	9.149556	0	4. 61	0	45	9.164671	9.164745	9.164818	4	0	45	9.164892	9.164966	9.165040	4	0	45	9.165259	9.165333	9.165407	4
2	0	9.149632	9.149708	9.149784	45	1 = 15	17	0	9.165259	9.165333	9.165407	4	15	0	9.165533	9.165607	9.165681	4	15	0	9.165774	9.165848	9.165921	4
15	0	9.149860	9.149936	9.150012	30	2. 30	15	15	9.165774	9.165848	9.165921	4	30	15	9.165994	9.166068	9.166141	4	30	15	9.166214	9.166288	9.166361	4
30	0	9.150088	9.150164	9.150240	15	3. 46	15	30	9.166214	9.166288	9.166361	4	45	30	9.166344	9.166418	9.166491	4	45	30	9.166654	9.166727	9.166800	4
45	0	9.150316	9.150392	9.150468	0	4. 61	0	45	9.166654	9.166727	9.166800	4	0	45	9.166829	9.166903	9.166976	4	0	45	9.167093	9.167166	9.167240	4
3	0	9.150544	9.150620	9.150696	45	1 = 15	18	0	9.167093	9.167166	9.167240	4	15	0	9.167313	9.167386	9.167459	4	15	0	9.167632	9.167705	9.167778	4
15	0	9.150772	9.150848	9.150924	30	2. 30	15	15	9.167632	9.167705	9.167778	4	30	15	9.167852	9.167925	9.168000	4	30	15	9.168219	9.168292	9.168365	4
30	0	9.151000	9.151075	9.151151	15	3. 45	15	30	9.168219	9.168292	9.168365	4	45	30	9.168409	9.168482	9.168555	4	45	30	9.168822	9.168895	9.168968	4
45	0	9.151227	9.151303	9.151379	0	4. 61	0	45	9.168409	9.168482	9.168555	4	0	45	9.168681	9.168754	9.168827	4	0	45	9.169093	9.169166	9.169239	4
4	0	9.151454	9.151530	9.151606	45	1 = 15	19	0	9.168681	9.168754	9.168827	4	15	0	9.168954	9.169027	9.169100	4	15	0	9.169271	9.169344	9.169417	4
15	0	9.151682	9.151757	9.151833	30	2. 30	15	15	9.169271	9.169344	9.169417	4	30	15	9.169584	9.169657	9.169730	4	30	15	9.169941	9.170014	9.170087	4
30	0	9.151909	9.151984	9.152060	15	3. 45	15	30	9.169941	9.169994	9.170047	4	45	30	9.170157	9.170230	9.170303	4	45	30	9.170514	9.170587	9.170660	4
45	0	9.152136	9.152211	9.152287	0	4. 61	0	45	9.170157	9.170230	9.170303	4	0	45	9.170319	9.170392	9.170465	4	0	45	9.170721	9.170794	9.170867	4
5	0	9.152363	9.152438	9.152514	45	1 = 15	20	0	9.170319	9.170392	9.170465	4	15	0	9.170584	9.170657	9.170730	4	15	0	9.170941	9.171014	9.171087	4
15	0	9.152590	9.152665	9.152741	30	2. 30	15	15	9.170941	9.171014	9.171087	4	30	15	9.171247	9.171320	9.171393	4	30	15	9.171649	9.171722	9.171795	4
30	0	9.152816	9.152892	9.152967	15	3. 45	15	30	9.171649	9.171722	9.171795	4	45	30	9.171881	9.171954	9.172027	4	45	30	9.172283	9.172356	9.172429	4
45	0	9.153043	9.153118	9.153194	0	4. 60	0	45	9.171881	9.171954	9.172027	4	0	45	9.172103	9.172176	9.172249	4	0	45	9.172451	9.172524	9.172597	4
6	0	9.153269	9.153345	9.153420	45	1 = 15	21	0	9.172103	9.172176	9.172249	4	15	0	9.172369	9.172442	9.172515	4	15	0	9.172717	9.172790	9.172863	4
15	0	9.153496	9.153571	9.153646	30	2. 30	15	15	9.172717	9.172790	9.172863	4	30	15	9.172984	9.173057	9.173130	4	30	15	9.173378	9.173451	9.173524	4
30	0	9.153722	9.153797	9.153873	15	3. 45	15	30	9.172984	9.173057	9.173130	4	45	30	9.173200	9.173273	9.173346	4	45	30	9.173640	9.173713	9.173786	4
45	0	9.153948	9.154023	9.154099	0	4. 60	0	45	9.173200	9.173273	9.173346	4	0	45	9.173417	9.173490	9.173563	4	0	45	9.173807	9.173880	9.173953	4
7	0	9.154174	9.154249	9.154325	45	1 = 15	22	0	9.173417	9.173490	9.173563	4	15	0	9.173634	9.173707	9.173780	4	15	0	9.174024	9.174097	9.174170	4
15	0	9.154400	9.154475	9.154550	30	2. 30	15	15	9.174024	9.174097	9.174170	4	30	15	9.174241	9.174314	9.174387	4	30	15	9.174637	9.174710	9.174783	4
30	0	9.154626	9.154701	9.154776	15	3. 45	15	30	9.174637	9.174710	9.174783	4	45	30	9.174854	9.174927	9.175000	4	45	30	9.175246	9.175319	9.175392	4
45	0	9.154851	9.154927	9.155002	0	4. 60	0	45	9.174854	9.174927	9.175000	4	0	45	9.175071	9.175144	9.175217	4	0	45	9.175463	9.175536	9.175609	4
8	0	9.155077	9.155152	9.155227	45	1 = 15	23	0	9.175071	9.175144	9.175217	4	15	0	9.175288	9.175361	9.175434	4	15	0	9.175729	9.175802	9.175875	4
15	0	9.155302	9.155377	9.155453	30	2. 30	15	15	9.175729	9.175802	9.175875	4	30	15	9.175996	9.176069	9.176142	4	30	15	9.176384	9.176457	9.176530	4
30	0	9.155528	9.155603	9.155678	15	3. 45	15	30	9.175996	9.176069	9.176142	4	45	30	9.176213	9.176286	9.176359	4	45	30	9.176601	9.176674	9.176747	4
45	0	9.155753	9.155828	9.155903	0	4. 60	0	45	9.176213	9.176286	9.176359	4	0	45	9.176430	9.176503	9.176576	4	0	45	9.176818	9.176891	9.176964	4
9	0	9.155978	9.156053	9.156128	45	1 = 15	24	0	9.176430	9.176503	9.176576	4	15	0	9.176647	9.176720	9.176793	4	15	0	9.177084	9.177157	9.177230	4
15	0	9.156203	9.156278	9.156353	30	2. 30	15	15	9.177084	9.177157	9.177230	4	30	15	9.177291	9.177364	9.177437	4	30	15	9.177779	9.177852	9.177925	4
30	0	9.156428	9.156503	9.156578	15	3. 45	15	30	9.177291	9.177364	9.177437	4	45	30	9.177508	9.177581	9.177654	4	45	30	9.178000	9.178073	9.178146	4
45	0	9.156653	9.156728	9.156802	0	4. 60	0	45	9.177508	9.177581	9.177654	4	0	45	9.177725	9.177798	9.177871	4	0	45	9.178168	9.178241	9.178314	4
10	0	9.156877	9.156952	9.157027	45	1 = 15	25	0	9.177725	9.177798	9.177871	4	15	0	9.177942	9.178015	9.178088	4	15	0	9.178429	9.178502	9.178575	4
15	0	9.157102	9.157177	9.157252	30	2. 30	15	15	9.178429	9.178502	9.178575	4	30	15	9.178646	9.178719	9.178792	4	30	15	9.179129	9.179202	9.179275	4
30	0	9.157326	9.157401	9.157476	15	3. 45	15	30	9.178646	9.178719	9.178792	4	45	30	9.178863	9.178936	9.179009	4	45	30	9.179392	9.179465	9.179538	4
45	0	9.157551	9.157625	9.157700	0	4. 60	0	45	9.178863	9.178936	9.179009	4	0	45	9.179080	9.179153	9.179226	4	0	45	9.179609	9.179682	9.179755	4
11	0	9.157775	9.157850	9.157924	45	1 = 15	26	0	9.179080	9.179153	9.179226	4	15	0	9.179346	9.179419	9.179492	4	15	0	9.179825	9.179898	9.179971	4
15	0	9.157999	9.158074	9.158148	30	2. 30	15	15	9.179346	9.179419	9.179492	4	30	15	9.179563	9.179636	9.179709	4	30	15	9.180129	9.180202	9.180275	4
30	0	9.158223	9.158298	9.158372	15	3. 45	15	30	9.179563	9.179636	9.179709	4	45	30	9.179780	9.179853	9.179926	4	45	30	9.180368	9.180441	9.180514	4
45	0	9.158447	9.158521	9.158596	0	4. 60	0	45	9.179780	9.179853	9.179926	4	0	45	9.180007	9.180080	9.180153	4	0	45	9.180532	9.180605	9.180678	4
12	0	9.158671	9.158745	9.158820	45	1 = 15	27	0	9.180007	9.180080	9.180153	4	15	0	9.180264	9.180337	9.180410	4	15	0	9.180799	9.180872		

LOGARITHMIC TANGENTS.

Tangent of 8 degrees, or Co-tangent of 98 degrees.					Tangent of 8 degrees, or Co-tangent of 98 degrees.												
5"		10"		Seconds	Minutes	Proport. parts.	0"		5"		10"		Seconds	Minutes	Proport. parts.		
499	9.174571	9.174643	45	1" = 14	45	0	9.187280	9.187350	9.187420	45	1" = 14	45	0	9.187280	9.187350	9.187420	
715	9.174787	9.174859	30	2. 29	15	9.187490	9.187560	9.187630	30	2. 28	15	9.187490	9.187560	9.187630			
931	9.175003	9.175075	15	3. 43	30	9.187700	9.187770	9.187840	15	3. 42	30	9.187700	9.187770	9.187840			
147	9.175218	9.175290	0 29	4. 58	45	9.187910	9.187980	9.188050	0 14	4. 56	45	9.187910	9.187980	9.188050			
362	9.175434	9.175506	45	1" = 14	46	0	9.188120	9.188190	9.188259	45	1" = 14	46	0	9.188120	9.188190	9.188259	
578	9.175650	9.175721	30	2. 29	15	9.188320	9.188390	9.188460	30	2. 28	15	9.188320	9.188390	9.188460			
793	9.175865	9.175937	15	3. 43	30	9.188530	9.188600	9.188678	15	3. 42	30	9.188530	9.188600	9.188678			
909	9.176080	9.176152	0 28	4. 57	45	9.188748	9.188818	9.188888	0 13	4. 56	45	9.188748	9.188818	9.188888			
124	9.176296	9.176367	45	1" = 14	47	0	9.188958	9.189027	9.189097	45	1" = 14	47	0	9.188958	9.189027	9.189097	
139	9.176511	9.176583	30	2. 29	15	9.189167	9.189237	9.189306	30	2. 28	15	9.189167	9.189237	9.189306			
154	9.176726	9.176798	15	3. 43	30	9.189376	9.189446	9.189515	15	3. 42	30	9.189376	9.189446	9.189515			
169	9.176941	9.177012	0 27	4. 57	45	9.189585	9.189655	9.189724	0 12	4. 56	45	9.189585	9.189655	9.189724			
184	9.177156	9.177227	45	1" = 14	48	0	9.189794	9.189864	9.189933	45	1" = 14	48	0	9.189794	9.189864	9.189933	
199	9.177370	9.177442	30	2. 29	15	9.190003	9.190072	9.190142	30	2. 28	15	9.190003	9.190072	9.190142			
213	9.177585	9.177657	15	3. 43	30	9.190212	9.190281	9.190351	15	3. 42	30	9.190212	9.190281	9.190351			
228	9.177800	9.177871	0 26	4. 57	45	9.190420	9.190490	9.190559	0 11	4. 56	45	9.190420	9.190490	9.190559			
243	9.178014	9.178085	45	1" = 14	49	0	9.190629	9.190698	9.190768	45	1" = 14	49	0	9.190629	9.190698	9.190768	
257	9.178228	9.178300	30	2. 29	15	9.190837	9.190907	9.190976	30	2. 28	15	9.190837	9.190907	9.190976			
271	9.178443	9.178514	15	3. 43	30	9.191046	9.191115	9.191185	15	3. 42	30	9.191046	9.191115	9.191185			
285	9.178657	9.178728	0 25	4. 57	45	9.191254	9.191323	9.191393	0 10	4. 56	45	9.191254	9.191323	9.191393			
299	9.178871	9.178942	45	1" = 14	50	0	9.191462	9.191531	9.191601	45	1" = 14	50	0	9.191462	9.191531	9.191601	
313	9.179085	9.179156	30	2. 29	15	9.191670	9.191740	9.191809	30	2. 28	15	9.191670	9.191740	9.191809			
327	9.179298	9.179370	15	3. 43	30	9.191878	9.191948	9.192017	15	3. 42	30	9.191878	9.191948	9.192017			
341	9.179512	9.179583	0 24	4. 57	45	9.192086	9.192155	9.192225	0 9	4. 55	45	9.192086	9.192155	9.192225			
355	9.179726	9.179797	45	1" = 14	51	0	9.192294	9.192363	9.192432	45	1" = 14	51	0	9.192294	9.192363	9.192432	
368	9.179939	9.180010	30	2. 28	15	9.192502	9.192571	9.192640	30	2. 28	15	9.192502	9.192571	9.192640			
382	9.180153	9.180224	15	3. 43	30	9.192709	9.192778	9.192848	15	3. 41	30	9.192709	9.192778	9.192848			
395	9.180366	9.180437	0 23	4. 57	45	9.192917	9.192986	9.193055	0 8	4. 55	45	9.192917	9.192986	9.193055			
408	9.180579	9.180650	45	1" = 14	52	0	9.193124	9.193193	9.193262	45	1" = 14	52	0	9.193124	9.193193	9.193262	
421	9.180792	9.180863	30	2. 28	15	9.193332	9.193401	9.193470	30	2. 28	15	9.193332	9.193401	9.193470			
434	9.181005	9.181076	15	3. 43	30	9.193539	9.193608	9.193677	15	3. 41	30	9.193539	9.193608	9.193677			
447	9.181218	9.181289	0 22	4. 57	45	9.193746	9.193815	9.193884	0 7	4. 55	45	9.193746	9.193815	9.193884			
460	9.181431	9.181502	45	1" = 14	53	0	9.193953	9.194022	9.194091	45	1" = 14	53	0	9.193953	9.194022	9.194091	
473	9.181644	9.181715	30	2. 28	15	9.194160	9.194229	9.194298	30	2. 28	15	9.194160	9.194229	9.194298			
486	9.181857	9.181928	15	3. 43	30	9.194367	9.194436	9.194505	15	3. 41	30	9.194367	9.194436	9.194505			
498	9.182069	9.182140	0 21	4. 57	45	9.194574	9.194642	9.194711	0 6	4. 55	45	9.194574	9.194642	9.194711			
511	9.182281	9.182352	45	1" = 14	54	0	9.194780	9.194849	9.194918	45	1" = 14	54	0	9.194780	9.194849	9.194918	
523	9.182494	9.182565	30	2. 28	15	9.194987	9.195056	9.195124	30	2. 28	15	9.194987	9.195056	9.195124			
535	9.182706	9.182777	15	3. 42	30	9.195193	9.195262	9.195331	15	3. 41	30	9.195193	9.195262	9.195331			
547	9.182918	9.182989	0 20	4. 57	45	9.195400	9.195468	9.195537	0 5	4. 55	45	9.195400	9.195468	9.195537			
560	9.183130	9.183201	45	1" = 14	55	0	9.195606	9.195675	9.195743	45	1" = 14	55	0	9.195606	9.195675	9.195743	
572	9.183342	9.183413	30	2. 28	15	9.195812	9.195881	9.195950	30	2. 27	15	9.195812	9.195881	9.195950			
583	9.183554	9.183625	15	3. 42	30	9.196018	9.196087	9.196156	15	3. 41	30	9.196018	9.196087	9.196156			
595	9.183766	9.183836	0 19	4. 56	45	9.196224	9.196293	9.196362	0 4	4. 55	45	9.196224	9.196293	9.196362			
607	9.183977	9.184048	45	1" = 14	56	0	9.196430	9.196499	9.196567	45	1" = 14	56	0	9.196430	9.196499	9.196567	
618	9.184189	9.184259	30	2. 28	15	9.196636	9.196705	9.196773	30	2. 27	15	9.196636	9.196705	9.196773			
630	9.184400	9.184471	15	3. 42	30	9.196842	9.196910	9.196979	15	3. 41	30	9.196842	9.196910	9.196979			
641	9.184612	9.184682	0 18	4. 56	45	9.197047	9.197116	9.197185	0 3	4. 55	45	9.197047	9.197116	9.197185			
653	9.184823	9.184893	45	1" = 14	57	0	9.197253	9.197322	9.197390	45	1" = 14	57	0	9.197253	9.197322	9.197390	
664	9.185034	9.185104	30	2. 28	15	9.197459	9.197527	9.197595	30	2. 27	15	9.197459	9.197527	9.197595			
675	9.185245	9.185315	15	3. 42	30	9.197664	9.197732	9.197801	15	3. 41	30	9.197664	9.197732	9.197801			
686	9.185456	9.185526	0 17	4. 56	45	9.197869	9.197938	9.198006	0 2	4. 55	45	9.197869	9.197938	9.198006			
697	9.185667	9.185737	45	1" = 14	58	0	9.198074	9.198143	9.198211	45	1" = 14	58	0	9.198074	9.198143	9.198211	
707	9.185878	9.185948	30	2. 28	15	9.198279	9.198348	9.198416	30	2. 27	15	9.198279	9.198348	9.198416			
718	9.186088	9.186159	15	3. 42	30	9.198484	9.198553	9.198621	15	3. 41	30	9.198484	9.198553	9.198621			
729	9.186299	9.186369	0 16	4. 56	45	9.198689	9.198758	9.198826	0 1	4. 55	45	9.198689	9.198758	9.198826			
739	9.186509	9.186579	45	1" = 14	59	0	9.198894	9.198962	9.199031	45	1" = 14	59	0	9.198894	9.198962	9.199031	
750	9.186720	9.186790	30	2. 28	15	9.199099	9.199167	9.199235	30	2. 27	15	9.199099	9.199167	9.199235			
760	9.186930	9.187000	15	3. 42	30	9.199304	9.199372	9.199440	15	3. 41	30	9.199304	9.199372	9.199440			
770	9.187140	9.187210	0 15	4. 56	45	9.199508	9.199576	9.199644	0 0	4. 55	45	9.199508	9.199576	9.199644			
10"		5"		Seconds	Minutes	Proport. parts.	15"		10"		5"		Seconds	Minutes	Proport. parts.		
Tangent of 81 degrees, or Tangent of 171 degrees.						Co-tangent of 81 degrees, or Tangent of 171 degrees.											

LOGARITHMIC TANGENTS.

Minutes		Seconds		Tangent of 9 degrees, or Co-tangent of 99 degrees.			Seconds		Minutes		Proport. parts.		Minutes		Seconds		Tangent of 9 degrees, or Co-tangent of 99 degrees.			Seconds	
				0'	5'	10'											0'	5'	10'		
0	0	9.199713	9.199781	9.199849	45	1" = 14	15	0	9.211815	9.211882	9.211948	45	1	14	15	0	9.211815	9.211882	9.211948	45	
15	0	9.199917	9.199985	9.200053	30	2. 27	15	15	9.212014	9.212081	9.212147	30	2. 27	15	15	15	9.212014	9.212081	9.212147	30	
30	0	9.200121	9.200189	9.200257	15	3. 41	30	30	9.212213	9.212280	9.212346	15	3. 41	30	30	30	9.212213	9.212280	9.212346	15	
45	0	9.200325	9.200393	9.200461	0	4. 54	45	45	9.212412	9.212478	9.212545	0	4. 54	45	45	45	9.212412	9.212478	9.212545	0	
1	0	9.200529	9.200597	9.200665	45	1 = 14	16	0	9.212611	9.212677	9.212743	45	1 = 14	16	0	0	9.212611	9.212677	9.212743	45	
15	0	9.200733	9.200801	9.200869	30	2. 27	15	15	9.212810	9.212876	9.212942	30	2. 27	15	15	15	9.212810	9.212876	9.212942	30	
30	0	9.200937	9.201005	9.201073	15	3. 41	30	30	9.213008	9.213074	9.213141	15	3. 41	30	30	30	9.213008	9.213074	9.213141	15	
45	0	9.201141	9.201209	9.201277	0	4. 54	45	45	9.213207	9.213273	9.213339	0	4. 54	45	45	45	9.213207	9.213273	9.213339	0	
2	0	9.201345	9.201413	9.201481	45	1 = 14	17	0	9.213405	9.213471	9.213537	45	1 = 14	17	0	0	9.213405	9.213471	9.213537	45	
15	0	9.201549	9.201616	9.201684	30	2. 27	15	15	9.213604	9.213670	9.213736	30	2. 27	15	15	15	9.213604	9.213670	9.213736	30	
30	0	9.201752	9.201820	9.201888	15	3. 41	30	30	9.213802	9.213868	9.213934	15	3. 41	30	30	30	9.213802	9.213868	9.213934	15	
45	0	9.201956	9.202023	9.202091	0	4. 54	45	45	9.214000	9.214066	9.214132	0	4. 54	45	45	45	9.214000	9.214066	9.214132	0	
3	0	9.202159	9.202227	9.202294	45	1 = 14	18	0	9.214198	9.214264	9.214330	45	1 = 14	18	0	0	9.214198	9.214264	9.214330	45	
15	0	9.202362	9.202430	9.202498	30	2. 27	15	15	9.214396	9.214462	9.214528	30	2. 27	15	15	15	9.214396	9.214462	9.214528	30	
30	0	9.202565	9.202633	9.202701	15	3. 41	30	30	9.214594	9.214660	9.214726	15	3. 41	30	30	30	9.214594	9.214660	9.214726	15	
45	0	9.202768	9.202836	9.202904	0	4. 54	45	45	9.214792	9.214858	9.214924	0	4. 54	45	45	45	9.214792	9.214858	9.214924	0	
4	0	9.202971	9.203039	9.203107	45	1 = 14	19	0	9.214989	9.215055	9.215121	45	1 = 14	19	0	0	9.214989	9.215055	9.215121	45	
15	0	9.203174	9.203242	9.203310	30	2. 27	15	15	9.215187	9.215253	9.215319	30	2. 27	15	15	15	9.215187	9.215253	9.215319	30	
30	0	9.203377	9.203445	9.203512	15	3. 41	30	30	9.215385	9.215451	9.215516	15	3. 41	30	30	30	9.215385	9.215451	9.215516	15	
45	0	9.203580	9.203647	9.203715	0	4. 54	45	45	9.215582	9.215648	9.215714	0	4. 54	45	45	45	9.215582	9.215648	9.215714	0	
5	0	9.203783	9.203850	9.203918	45	1 = 13	20	0	9.215780	9.215845	9.215911	45	1 = 13	20	0	0	9.215780	9.215845	9.215911	45	
15	0	9.203985	9.204053	9.204120	30	2. 27	15	15	9.215977	9.216043	9.216108	30	2. 27	15	15	15	9.215977	9.216043	9.216108	30	
30	0	9.204188	9.204255	9.204322	15	3. 40	30	30	9.216174	9.216240	9.216306	15	3. 40	30	30	30	9.216174	9.216240	9.216306	15	
45	0	9.204390	9.204457	9.204525	0	4. 54	45	45	9.216371	9.216437	9.216503	0	4. 54	45	45	45	9.216371	9.216437	9.216503	0	
6	0	9.204592	9.204660	9.204727	45	1 = 13	21	0	9.216568	9.216634	9.216700	45	1 = 13	21	0	0	9.216568	9.216634	9.216700	45	
15	0	9.204794	9.204862	9.204929	30	2. 27	15	15	9.216765	9.216831	9.216897	30	2. 27	15	15	15	9.216765	9.216831	9.216897	30	
30	0	9.204996	9.205064	9.205131	15	3. 40	30	30	9.216962	9.217028	9.217093	15	3. 40	30	30	30	9.216962	9.217028	9.217093	15	
45	0	9.205199	9.205266	9.205333	0	4. 54	45	45	9.217159	9.217225	9.217290	0	4. 54	45	45	45	9.217159	9.217225	9.217290	0	
7	0	9.205400	9.205468	9.205535	45	1 = 13	22	0	9.217356	9.217421	9.217487	45	1 = 13	22	0	0	9.217356	9.217421	9.217487	45	
15	0	9.205602	9.205670	9.205737	30	2. 27	15	15	9.217552	9.217618	9.217683	30	2. 27	15	15	15	9.217552	9.217618	9.217683	30	
30	0	9.205804	9.205871	9.205938	15	3. 40	30	30	9.217749	9.217814	9.217880	15	3. 40	30	30	30	9.217749	9.217814	9.217880	15	
45	0	9.206006	9.206073	9.206140	0	4. 54	45	45	9.217945	9.218011	9.218076	0	4. 54	45	45	45	9.217945	9.218011	9.218076	0	
8	0	9.206207	9.206274	9.206342	45	1 = 13	23	0	9.218142	9.218207	9.218273	45	1 = 13	23	0	0	9.218142	9.218207	9.218273	45	
15	0	9.206409	9.206476	9.206543	30	2. 27	15	15	9.218338	9.218403	9.218469	30	2. 27	15	15	15	9.218338	9.218403	9.218469	30	
30	0	9.206610	9.206677	9.206744	15	3. 40	30	30	9.218534	9.218600	9.218665	15	3. 40	30	30	30	9.218534	9.218600	9.218665	15	
45	0	9.206811	9.206878	9.206946	0	4. 54	45	45	9.218730	9.218796	9.218861	0	4. 54	45	45	45	9.218730	9.218796	9.218861	0	
9	0	9.207013	9.207080	9.207147	45	1 = 13	24	0	9.218926	9.218992	9.219057	45	1 = 13	24	0	0	9.218926	9.218992	9.219057	45	
15	0	9.207214	9.207281	9.207348	30	2. 27	15	15	9.219122	9.219188	9.219253	30	2. 27	15	15	15	9.219122	9.219188	9.219253	30	
30	0	9.207415	9.207482	9.207549	15	3. 40	30	30	9.219318	9.219384	9.219449	15	3. 40	30	30	30	9.219318	9.219384	9.219449	15	
45	0	9.207616	9.207683	9.207750	0	4. 54	45	45	9.219514	9.219579	9.219645	0	4. 54	45	45	45	9.219514	9.219579	9.219645	0	
10	0	9.207817	9.207884	9.207950	45	1 = 13	25	0	9.219710	9.219775	9.219840	45	1 = 13	25	0	0	9.219710	9.219775	9.219840	45	
15	0	9.208017	9.208084	9.208151	30	2. 27	15	15	9.219905	9.219971	9.220036	30	2. 27	15	15	15	9.219905	9.219971	9.220036	30	
30	0	9.208218	9.208285	9.208352	15	3. 40	30	30	9.220101	9.220166	9.220231	15	3. 40	30	30	30	9.220101	9.220166	9.220231	15	
45	0	9.208419	9.208485	9.208552	0	4. 53	45	45	9.220296	9.220362	9.220427	0	4. 53	45	45	45	9.220296	9.220362	9.220427	0	
11	0	9.208619	9.208686	9.208753	45	1 = 13	26	0	9.220492	9.220557	9.220622	45	1 = 13	26	0	0	9.220492	9.220557	9.220622	45	
15	0	9.208820	9.208886	9.208953	30	2. 27	15	15	9.220687	9.220752	9.220817	30	2. 27	15	15	15	9.220687	9.220752	9.220817	30	
30	0	9.209020	9.209087	9.209153	15	3. 40	30	30	9.220882	9.220947	9.221012	15	3. 40	30	30	30	9.220882	9.220947	9.221012	15	
45	0	9.209220	9.209287	9.209354	0	4. 53	45	45	9.221077	9.221142	9.221207	0	4. 53	45	45	45	9.221077	9.221142	9.221207	0	
12	0	9.209420	9.209487	9.209554	45	1 = 13	27	0	9.221272	9.221337	9.221403	45	1 = 13	27	0	0	9.221272	9.221337	9.221403	45	
15	0	9.209620	9.209687	9.209754	30	2. 27	15	15	9.221467	9.221532	9.221597	30	2. 27	15	15	15	9.221467	9.221532	9.221597	30	
30	0	9.209820	9.209887	9.209954	15	3. 40	30	30	9.221662	9.221727	9.221792	15	3. 40	30	30	30	9.221662	9.221727	9.221792	15	
45	0	9.210020	9.210087	9.210153	0	4. 53	45	45	9.221857	9.221922	9.221987	0	4. 53	45	45	45	9.221857	9.221922	9.221987	0	
13	0	9.210220	9.210287	9.210353	45	1 = 13	28	0	9.222052	9.222117	9.222182	45	1 = 13	28	0	0	9.222052	9.222117	9.222182	45	
15	0	9.210420	9.210486	9.210553	30	2. 27	15	15	9.222246	9.222311	9.222376	30	2. 27	15	15	15	9.222246	9.222311	9.222376	30	
30	0	9.210619	9.210686	9.210752	15	3. 40	30	30	9.222441	9.222506	9.222571	15	3. 40	30	30	30	9.222441	9.222506	9.222571	15	
45	0	9.210819	9.210885	9.210952	0	4. 53	45	45	9.222635	9.222700	9.222765	0	4. 53	45	45	45	9.222635	9.222700	9.222765	0	
14	0	9.211018	9.211085	9.211151	45	1 = 13	29	0	9.222830	9.222895	9.222959	45	1 = 13	29	0	0	9.222830	9.222895	9.222959	45	
15	0	9.211218	9.211284	9.211351	30	2. 27	15	15	9.223024	9.223089	9.223154	30	2. 27	15	15	15	9.223024	9.223089	9.223154	30	
30	0	9.211417	9.211483	9.211550	15	3. 40															

TABLE XXXVII.

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LOGARITHMIC TANGENTS.

Tangent of 9 degrees, or tangent of 99 degrees.			Tangent of 9 degrees, or Co-tangent of 99 degrees.		
5"	10"	Seconds Minutes Proport. parts.	0"	5"	10"
16079.223671	9.223736	45	9.235103	9.235166	9.235229
8019.223865	9.223930	30	9.235292	9.235355	9.235418
9949.224059	9.224124	15	9.235481	9.235544	9.235607
1889.224253	9.224317	0 29	9.235670	9.235733	9.235796
3829.224447	9.224511	45	9.235859	9.235922	9.235985
5769.224640	9.224705	30	9.236048	9.236111	9.236174
7699.224834	9.224898	15	9.236237	9.236300	9.236362
9639.225027	9.225092	0 28	9.236425	9.236488	9.236551
1569.225221	9.225285	45	9.236614	9.236677	9.236740
3499.225414	9.225478	30	9.236803	9.236865	9.236928
5439.225607	9.225671	15	9.236991	9.237054	9.237117
7369.225800	9.225865	0 27	9.237179	9.237242	9.237305
9299.225993	9.226058	45	9.237368	9.237431	9.237493
11229.226186	9.226251	30	9.237556	9.237619	9.237682
3159.226379	9.226443	15	9.237744	9.237807	9.237870
5089.226572	9.226636	0 26	9.237932	9.237995	9.238058
7009.226765	9.226829	45	9.238120	9.238183	9.238246
8939.226957	9.227021	30	9.238308	9.238371	9.238434
0869.227150	9.227214	15	9.238496	9.238559	9.238621
2789.227342	9.227406	0 25	9.238684	9.238747	9.238809
4719.227535	9.227599	45	9.238872	9.238934	9.238997
6639.227727	9.227791	30	9.239059	9.239122	9.239184
8559.227919	9.227983	15	9.239247	9.239309	9.239372
0479.228111	9.228176	0 24	9.239434	9.239497	9.239559
2409.228304	9.228368	45	9.239622	9.239684	9.239747
4329.228496	9.228551	30	9.239809	9.239872	9.239934
6249.228687	9.228751	15	9.239996	9.240059	9.240121
8159.228879	9.228943	0 23	9.240184	9.240246	9.240308
0079.229071	9.229135	45	9.240371	9.240433	9.240496
1999.229263	9.229327	30	9.240558	9.240620	9.240682
3919.229454	9.229518	15	9.240745	9.240807	9.240869
5829.229646	9.229710	0 22	9.240932	9.240994	9.241056
7749.229837	9.229901	45	9.241119	9.241181	9.241243
9669.230029	9.230092	30	9.241305	9.241367	9.241430
1569.230220	9.230284	15	9.241492	9.241554	9.241616
3479.230411	9.230475	0 21	9.241678	9.241741	9.241803
5399.230602	9.230666	45	9.241865	9.241927	9.241989
7309.230793	9.230857	30	9.242051	9.242114	9.242176
9219.230984	9.231048	15	9.242238	9.242300	9.242362
1129.231175	9.231239	0 20	9.242424	9.242486	9.242548
3029.231366	9.231430	45	9.242610	9.242672	9.242734
4939.231557	9.231620	30	9.242796	9.242858	9.242920
6849.231747	9.231811	15	9.242982	9.243044	9.243106
8749.231938	9.232002	0 19	9.243168	9.243230	9.243292
0659.232128	9.232192	45	9.243354	9.243416	9.243478
2559.232319	9.232382	30	9.243540	9.243602	9.243664
4469.232509	9.232573	15	9.243726	9.243788	9.243850
6369.232700	9.232763	0 18	9.243912	9.243974	9.244035
8269.232890	9.232953	45	9.244097	9.244159	9.244221
0169.233080	9.233143	30	9.244283	9.244345	9.244406
2069.233270	9.233333	15	9.244468	9.244530	9.244592
3969.233460	9.233523	0 17	9.244654	9.244715	9.244777
5869.233650	9.233713	45	9.244839	9.244901	9.244962
7769.233839	9.233903	30	9.245024	9.245086	9.245148
9669.234029	9.234092	15	9.245209	9.245271	9.245333
1569.234219	9.234282	0 16	9.245394	9.245456	9.245518
3459.234408	9.234471	45	9.245579	9.245641	9.245703
5359.234598	9.234661	30	9.245764	9.245826	9.245888
7249.234787	9.234850	15	9.245949	9.246011	9.246073
9139.234976	9.235040	0 15	9.246134	9.246196	9.246257
10"	5"	Seconds Minutes Proport. parts.	15"	10"	5"
Tangent of 80 degrees, or tangent of 170 degrees.			Co-tangent of 80 degrees, or Tangent of 170 degrees.		

TABLE XXXVII.

LOGARITHMIC TANGENTS.

Minutes		Tangent of 10 degrees, or Co-tangent of 100 degrees.											
		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	1	246319	246380	246442	246503	246565	246627	246688	246750	246811	246873	246934	246995
0	2	247057	247118	247180	247241	247303	247364	247426	247487	247548	247610	247671	247733
0	3	247794	247855	247917	247978	248039	248101	248162	248223	248285	248346	248407	248468
0	4	248530	248591	248652	248713	248775	248836	248897	248958	249020	249081	249142	249203
0	5	249364	249326	249387	249448	249509	249570	249631	249692	249753	249815	249876	249937
0	6	249998	250059	250120	250181	250242	250303	250364	250425	250486	250547	250608	250669
0	7	250730	250791	250852	250913	250974	251035	251096	251157	251218	251279	251339	251400
0	8	251461	251522	251583	251644	251705	251766	251826	251887	251948	252009	252070	252130
0	9	252191	252252	252313	252374	252434	252495	252556	252617	252677	252738	252799	252859
0	10	252920	252981	253041	253102	253163	253223	253284	253345	253405	253466	253527	253587
0	11	253648	253708	253769	253830	253890	253951	254011	254072	254132	254193	254253	254314
0	12	254374	254435	254495	254556	254616	254677	254737	254798	254858	254919	254979	255039
0	13	255100	255160	255221	255281	255341	255402	255462	255522	255583	255643	255703	255764
0	14	255824	255884	255945	256005	256065	256126	256186	256246	256306	256367	256427	256487
0	15	256547	256607	256668	256728	256788	256848	256908	256969	257029	257089	257149	257209
0	16	257269	257329	257389	257450	257510	257570	257630	257690	257750	257810	257870	257930
0	17	257990	258050	258110	258170	258230	258290	258350	258410	258470	258530	258590	258650
0	18	258710	258770	258830	258890	258950	259009	259069	259129	259189	259249	259309	259369
0	19	259429	259488	259548	259608	259668	259728	259788	259847	259907	259967	260027	260087
0	20	260146	260206	260266	260326	260385	260445	260505	260564	260624	260684	260743	260803
0	21	260863	260922	260982	261042	261101	261161	261220	261280	261340	261399	261459	261518
0	22	261578	261638	261697	261757	261816	261876	261935	261995	262054	262114	262173	262233
0	23	262292	262352	262411	262471	262530	262590	262649	262708	262768	262827	262887	262946
0	24	263005	263065	263124	263183	263243	263302	263361	263421	263480	263539	263599	263658
0	25	263717	263777	263836	263895	263955	264014	264073	264132	264191	264251	264310	264369
0	26	264428	264488	264547	264606	264665	264724	264783	264843	264902	264961	265020	265079
0	27	265138	265197	265256	265316	265375	265434	265493	265552	265611	265670	265729	265788
0	28	265847	265906	265965	266024	266083	266142	266201	266260	266319	266378	266437	266496
0	29	266555	266614	266673	266732	266790	266849	266908	266967	267026	267085	267144	267203
0	30	267261	267320	267379	267438	267497	267556	267614	267673	267732	267791	267849	267908
0	31	267967	268026	268084	268143	268202	268261	268319	268378	268437	268495	268554	268613
0	32	268671	268730	268789	268847	268906	268965	269023	269082	269141	269199	269258	269316
0	33	269375	269433	269492	269551	269609	269668	269726	269785	269843	269902	269960	270019
0	34	270077	270135	270194	270253	270311	270370	270428	270487	270545	270603	270662	270720
0	35	270779	270837	270895	270954	271012	271071	271129	271187	271246	271304	271362	271421
0	36	271479	271537	271595	271654	271712	271770	271829	271887	271945	272003	272062	272120
0	37	272178	272236	272295	272353	272411	272469	272527	272585	272644	272702	272760	272818
0	38	272877	272934	272992	273051	273109	273167	273225	273283	273341	273399	273457	273515
0	39	273573	273631	273689	273747	273806	273864	273922	273980	274038	274096	274153	274211
0	40	274269	274327	274385	274443	274501	274559	274617	274675	274733	274791	274849	274907
0	41	274964	275022	275080	275138	275196	275254	275312	275369	275427	275485	275543	275601
0	42	275658	275716	275774	275832	275890	275947	276005	276063	276121	276178	276236	276294
0	43	276351	276409	276467	276525	276583	276640	276698	276755	276813	276871	276928	276986
0	44	277043	277101	277159	277216	277274	277331	277389	277447	277504	277562	277619	277677
0	45	277734	277792	277849	277907	277964	278022	278079	278137	278194	278252	278309	278367
0	46	278424	278482	278539	278597	278654	278711	278769	278826	278884	278941	278998	279056
0	47	279113	279170	279228	279285	279343	279400	279457	279514	279572	279629	279686	279744
0	48	279801	279858	279916	279973	280030	280087	280145	280202	280259	280316	280373	280431
0	49	280488	280545	280602	280659	280717	280774	280831	280888	280945	281002	281059	281117
0	50	281174	281231	281288	281345	281402	281459	281516	281573	281630	281687	281744	281801
0	51	281859	281916	281973	282030	282086	282144	282201	282258	282315	282371	282428	282485
0	52	282542	282599	282656	282713	282770	282827	282884	282941	282998	283055	283111	283168
0	53	283225	283282	283339	283396	283453	283509	283566	283623	283680	283737	283793	283850
0	54	283907	283964	284021	284077	284134	284191	284248	284304	284361	284418	284474	284531
0	55	284588	284645	284701	284758	284815	284871	284928	284985	285041	285098	285155	285211
0	56	285268	285324	285381	285438	285494	285551	285607	285664	285720	285777	285834	285890
0	57	285947	286003	286060	286116	286173	286229	286286	286342	286399	286455	286512	286568
0	58	286625	286681	286737	286794	286850	286907	286963	287019	287076	287132	287189	287245
0	59	287301	287358	287414	287470	287527	287583	287640	287696	287752	287808	287865	287921
0	60	287977	288034	288090	288146	288202	288259	288315	288371	288427	288484	288540	288596
Minutes		60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'
Co-tangent of 79 degrees, or Tangent of 169 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 11 degrees, or Co-tangent of 101 degrees.											Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
288709	288765	288821	288877	288933	288989	289046	289102	289158	289214	289270	50	1° = 11
289382	289439	289495	289551	289607	289663	289719	289775	289831	289887	289943	58	2. 22
290055	290111	290167	290223	290279	290335	290391	290447	290503	290559	290615	57	3. 34
290727	290783	290839	290895	290951	291007	291063	291119	291175	291231	291287	56	4. 45
291398	291454	291510	291566	291622	291678	291734	291789	291845	291901	291957	55	1° = 11
292068	292124	292180	292236	292292	292347	292403	292459	292515	292570	292626	54	2. 22
292738	292793	292849	292905	292960	293016	293072	293127	293183	293239	293294	53	3. 34
293406	293461	293517	293573	293628	293684	293739	293795	293851	293906	293962	52	4. 45
294073	294128	294184	294239	294295	294351	294406	294462	294517	294573	294628	51	1° = 11
294739	294795	294850	294906	294961	295016	295072	295127	295183	295238	295294	50	2. 22
295404	295460	295515	295571	295626	295681	295737	295792	295847	295903	295958	49	3. 33
296069	296124	296179	296235	296290	296345	296401	296456	296511	296566	296622	48	4. 44
296732	296787	296843	296898	296953	297008	297064	297119	297174	297229	297284	47	1° = 11
297395	297450	297505	297560	297615	297670	297726	297781	297836	297891	297946	46	2. 22
298056	298111	298166	298221	298277	298332	298387	298442	298497	298552	298607	45	3. 33
298717	298772	298827	298882	298937	298992	299047	299102	299157	299212	299267	44	4. 44
299377	299431	299486	299541	299596	299651	299706	299761	299816	299871	299926	43	1° = 11
300035	300090	300145	300200	300255	300310	300364	300419	300474	300529	300584	42	2. 22
300693	300748	300803	300857	300912	300967	301022	301076	301131	301186	301241	41	3. 33
301350	301405	301460	301514	301569	301624	301678	301733	301788	301842	301897	40	4. 44
302061	302116	302170	302225	302279	302334	302388	302443	302498	302552	302607	39	1° = 11
302661	302716	302770	302825	302879	302934	302988	303043	303097	303152	303206	38	2. 22
303315	303370	303424	303479	303533	303588	303642	303697	303751	303805	303860	37	3. 33
303969	304023	304078	304132	304186	304241	304295	304349	304404	304458	304512	36	4. 44
304621	304675	304730	304784	304838	304893	304947	305001	305056	305110	305164	35	1° = 11
305273	305327	305381	305435	305490	305544	305598	305652	305706	305761	305815	34	2. 22
305923	305977	306031	306085	306140	306194	306248	306302	306356	306411	306465	33	3. 33
306573	306627	306681	306735	306789	306843	306897	306951	307005	307060	307114	32	4. 43
307222	307276	307330	307384	307438	307492	307546	307600	307654	307708	307762	31	1° = 11
307870	307923	307977	308031	308085	308139	308193	308247	308301	308355	308409	30	2. 22
308517	308570	308624	308678	308732	308786	308840	308894	308947	309001	309055	29	3. 32
309163	309216	309270	309324	309378	309432	309485	309539	309593	309647	309700	28	4. 43
309808	309862	309915	309969	310023	310076	310130	310184	310238	310291	310345	27	1° = 11
310452	310506	310560	310613	310667	310720	310774	310828	310881	310935	310989	26	2. 21
311096	311149	311203	311256	311310	311364	311417	311471	311524	311578	311631	25	3. 32
311738	311792	311845	311899	311952	312006	312059	312113	312166	312220	312273	24	4. 43
312380	312434	312487	312540	312594	312647	312701	312754	312807	312861	312914	23	1° = 11
313021	313074	313128	313181	313234	313288	313341	313394	313448	313501	313554	22	2. 21
313661	313714	313768	313821	313874	313927	313981	314034	314087	314140	314194	21	3. 32
314300	314353	314407	314460	314513	314566	314619	314672	314726	314779	314832	20	4. 43
314938	314991	315045	315098	315151	315204	315257	315310	315363	315416	315470	19	1° = 11
315576	315629	315682	315735	315788	315841	315894	315947	316000	316053	316106	18	2. 21
316212	316265	316318	316371	316424	316477	316530	316583	316636	316689	316742	17	3. 32
316848	316901	316954	317007	317060	317113	317166	317218	317271	317324	317377	16	4. 42
317483	317536	317589	317641	317694	317747	317800	317853	317906	317958	318011	15	1° = 11
318117	318170	318222	318275	318328	318381	318433	318486	318539	318592	318644	14	2. 21
318750	318803	318855	318908	318961	319014	319066	319119	319172	319224	319277	13	3. 32
319382	319435	319488	319540	319593	319645	319698	319751	319803	319856	319909	12	4. 42
320014	320066	320119	320171	320224	320277	320329	320382	320434	320487	320539	11	1° = 10
320644	320697	320749	320802	320854	320907	320959	321012	321064	321117	321169	10	2. 21
321274	321327	321379	321431	321484	321536	321589	321641	321693	321746	321798	9	3. 31
321903	321955	322008	322060	322113	322165	322217	322270	322322	322374	322427	8	4. 42
322531	322583	322636	322688	322740	322793	322845	322897	322949	323002	323054	7	1° = 10
323158	323211	323263	323315	323367	323420	323472	323524	323576	323628	323681	6	2. 21
323785	323837	323889	323941	323994	324046	324098	324150	324202	324254	324306	5	3. 31
324411	324463	324515	324567	324619	324671	324723	324775	324827	324879	324931	4	4. 42
325035	325087	325139	325191	325243	325295	325347	325399	325451	325503	325555	3	1° = 10
325659	325711	325763	325815	325867	325919	325971	326023	326075	326127	326179	2	2. 21
326282	326334	326386	326438	326490	326542	326594	326646	326697	326749	326801	1	3. 31
326905	326957	327008	327060	327112	327164	327216	327267	327319	327371	327423	0	4. 42
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-tangent of 78 degrees, or Tangent of 168 degrees.											Minutes	Proport. parts.

TABLE XXXVII.

LOGARITHMIC TANGENTS.

Minutes		Tangent of 12 degrees, or Co-tangent of 102 degrees.											
		0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	327475	327526	327578	327630	327682	327733	327785	327837	327889	327940	327992	328044	
1	328095	328147	328199	328250	328302	328354	328405	328457	328509	328560	328612	328664	
2	328715	328767	328819	328870	328922	328973	329025	329077	329128	329180	329231	329283	
3	329335	329386	329438	329489	329541	329592	329644	329695	329747	329798	329850	329901	
4	329953	330004	330056	330107	330159	330210	330262	330313	330365	330416	330468	330519	
5	330579	330622	330673	330725	330776	330828	330879	330930	330982	331033	331084	331136	
6	331187	331239	331290	331341	331393	331444	331495	331547	331598	331649	331701	331752	
7	331803	331854	331906	331957	332008	332059	332111	332162	332213	332265	332317	332368	
8	332418	332470	332521	332572	332623	332674	332726	332777	332828	332879	332930	332982	
9	333033	333084	333135	333186	333237	333288	333340	333391	333442	333493	333544	333595	
10	333646	333697	333748	333800	333851	333902	333953	334004	334055	334106	334157	334208	
11	334259	334310	334361	334412	334463	334514	334565	334616	334667	334718	334769	334820	
12	334871	334922	334973	335024	335075	335126	335177	335228	335279	335330	335381	335432	
13	335483	335534	335585	335636	335687	335738	335789	335839	335890	335941	335992	336043	
14	336093	336144	336195	336246	336297	336347	336398	336449	336499	336550	336601	336652	
15	336702	336753	336804	336855	336906	336956	337007	337058	337109	337160	337211	337262	
16	337311	337362	337413	337463	337514	337565	337616	337667	337717	337768	337819	337869	
17	337919	337970	338021	338071	338122	338173	338223	338274	338324	338375	338426	338476	
18	338527	338577	338628	338678	338729	338779	338830	338881	338931	338982	339032	339083	
19	339133	339184	339234	339285	339335	339386	339436	339487	339537	339588	339638	339689	
20	339739	339790	339840	339890	339941	339991	340042	340092	340143	340193	340243	340294	
21	340344	340395	340445	340495	340546	340596	340646	340697	340747	340797	340848	340898	
22	340948	340999	341049	341099	341150	341200	341250	341301	341351	341401	341451	341502	
23	341552	341602	341652	341703	341753	341803	341853	341904	341954	342004	342054	342104	
24	342155	342205	342255	342305	342355	342406	342456	342506	342556	342606	342656	342707	
25	342757	342807	342857	342907	342957	343007	343057	343107	343158	343208	343258	343308	
26	343358	343408	343458	343508	343558	343608	343658	343708	343758	343808	343858	343908	
27	343958	344008	344058	344108	344158	344208	344258	344308	344358	344408	344458	344508	
28	344558	344608	344658	344708	344758	344808	344858	344908	344958	345007	345057	345107	
29	345157	345207	345257	345307	345357	345406	345456	345506	345556	345606	345656	345705	
30	345755	345805	345855	345905	345955	346004	346054	346104	346154	346203	346253	346303	
31	346353	346403	346452	346502	346552	346601	346651	346701	346751	346800	346850	346900	
32	346949	346999	347049	347099	347148	347198	347248	347297	347347	347397	347446	347496	
33	347545	347595	347645	347694	347744	347794	347843	347893	347942	347992	348042	348091	
34	348141	348190	348240	348289	348339	348388	348438	348488	348537	348587	348636	348686	
35	348735	348785	348834	348884	348933	348983	349032	349082	349131	349181	349230	349280	
36	349329	349378	349428	349477	349527	349576	349626	349675	349724	349774	349823	349873	
37	349922	349971	350021	350070	350120	350169	350218	350268	350317	350366	350416	350465	
38	350514	350564	350613	350662	350712	350761	350810	350860	350909	350958	351007	351057	
39	351106	351155	351205	351254	351303	351352	351401	351451	351500	351549	351598	351648	
40	351697	351746	351795	351844	351894	351943	351992	352041	352090	352139	352188	352238	
41	352287	352336	352385	352434	352484	352533	352582	352631	352680	352729	352778	352828	
42	352876	352925	352975	353024	353073	353122	353171	353220	353269	353318	353367	353416	
43	353465	353514	353563	353612	353661	353710	353759	353808	353857	353906	353955	354004	
44	354053	354102	354151	354200	354249	354298	354347	354396	354445	354494	354543	354592	
45	354640	354689	354738	354787	354836	354885	354934	354983	355032	355081	355130	355179	
46	355227	355276	355324	355373	355422	355471	355520	355569	355617	355666	355715	355764	
47	355813	355861	355910	355959	356008	356056	356105	356154	356203	356252	356300	356349	
48	356398	356446	356495	356544	356593	356642	356690	356739	356787	356836	356885	356933	
49	356982	357031	357079	357128	357177	357226	357274	357323	357371	357420	357469	357517	
50	357566	357614	357663	357712	357760	357809	357857	357906	357955	358003	358052	358100	
51	358149	358197	358246	358294	358343	358391	358440	358488	358537	358586	358634	358683	
52	358731	358780	358828	358877	358925	358973	359022	359070	359119	359167	359216	359264	
53	359313	359361	359409	359458	359506	359555	359603	359652	359700	359748	359797	359845	
54	359894	359942	359990	360039	360087	360135	360184	360232	360280	360329	360377	360425	
55	360474	360522	360570	360619	360667	360715	360764	360812	360860	360909	360957	361005	
56	361053	361101	361150	361198	361246	361294	361343	361391	361439	361487	361536	361584	
57	361632	361680	361728	361777	361825	361873	361921	361969	362017	362066	362114	362162	
58	362210	362258	362306	362354	362402	362451	362499	362547	362595	362643	362691	362739	
59	362787	362835	362884	362932	362980	363028	363076	363124	363172	363220	363268	363316	
		60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'
Minutes		Co-tangent of 77 degrees, or Tangent of 167 degrees.											

LOGARITHMIC TANGENTS.

Tangent of 13 degrees, or Co-tangent of 103 degrees.											Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
363412	363460	363508	363556	363604	363652	363700	363748	363796	363844	363892	59	1" = 10
363988	364036	364084	364132	364180	364228	364276	364324	364372	364420	364468	58	2. 19
364563	364611	364659	364707	364755	364803	364851	364899	364947	364994	365042	57	3. 29
365138	365186	365234	365282	365329	365377	365425	365473	365521	365569	365616	56	4. 38
365712	365760	365808	365855	365903	365951	365999	366046	366094	366142	366190	55	1" = 10
366285	366333	366381	366428	366476	366524	366572	366619	366667	366715	366762	54	2. 19
366858	366905	366953	367001	367048	367096	367144	367191	367239	367287	367334	53	3. 29
367430	367477	367525	367572	367620	367668	367715	367763	367810	367858	367906	52	4. 38
368001	368048	368096	368144	368191	368239	368286	368334	368381	368429	368476	51	1" = 9
368571	368619	368666	368714	368761	368809	368856	368904	368951	368999	369046	50	2. 19
369141	369189	369236	369284	369331	369378	369426	369473	369521	369568	369616	49	3. 28
369710	369758	369805	369853	369900	369947	369995	370042	370089	370137	370184	48	4. 38
370279	370326	370374	370421	370468	370516	370563	370610	370658	370705	370752	47	1" = 9
370847	370894	370941	370989	371036	371083	371130	371178	371225	371272	371319	46	2. 19
371414	371461	371508	371556	371603	371650	371697	371745	371792	371839	371886	45	3. 28
371981	372028	372075	372122	372169	372216	372264	372311	372358	372405	372452	44	4. 38
372546	372593	372641	372688	372735	372782	372829	372876	372923	372970	373017	43	1" = 9
373112	373159	373206	373253	373300	373347	373394	373441	373488	373535	373582	42	2. 19
373737	373783	373830	373877	373924	373971	374018	374065	374112	374159	374206	41	3. 28
374240	374287	374334	374381	374428	374475	374522	374569	374616	374663	374709	40	4. 38
374803	374850	374897	374944	374991	375038	375085	375132	375178	375225	375272	39	1" = 9
375366	375413	375460	375506	375553	375600	375647	375694	375741	375787	375834	38	2. 19
375928	375975	376021	376068	376115	376162	376209	376255	376302	376349	376396	37	3. 28
376489	376536	376583	376629	376676	376723	376770	376816	376863	376910	376956	36	4. 37
377050	377096	377143	377190	377237	377283	377330	377377	377423	377470	377516	35	1" = 9
377610	377656	377703	377750	377796	377843	377890	377936	377983	378029	378076	34	2. 19
378169	378216	378262	378309	378355	378402	378449	378495	378542	378588	378635	33	3. 28
378728	378774	378821	378867	378914	378960	379007	379053	379100	379146	379193	32	4. 37
379286	379332	379379	379425	379472	379518	379565	379611	379658	379704	379750	31	1" = 9
379843	379890	379936	379983	380029	380075	380122	380168	380215	380261	380307	30	2. 19
380400	380447	380493	380539	380586	380632	380678	380725	380771	380817	380864	29	3. 28
380956	381003	381049	381095	381142	381188	381234	381280	381327	381373	381419	28	4. 37
381512	381558	381604	381651	381697	381743	381789	381836	381882	381928	381974	27	1" = 9
382067	382113	382159	382205	382252	382298	382344	382390	382436	382483	382529	26	2. 18
382621	382667	382713	382760	382806	382852	382898	382944	382990	383036	383082	25	3. 28
383175	383221	383267	383313	383359	383405	383451	383497	383543	383589	383636	24	4. 37
383728	383774	383820	383866	383912	383958	384004	384050	384096	384142	384188	23	1" = 9
384280	384326	384372	384418	384464	384510	384556	384602	384648	384694	384740	22	2. 18
384832	384878	384924	384970	385016	385062	385107	385153	385199	385245	385291	21	3. 28
385333	385379	385425	385471	385517	385563	385609	385655	385701	385747	385793	20	4. 37
385934	385979	386025	386071	386117	386163	386209	386254	386300	386346	386392	19	1" = 9
386483	386529	386575	386621	386667	386713	386758	386804	386850	386895	386941	18	2. 18
387033	387078	387124	387170	387216	387261	387307	387353	387399	387444	387490	17	3. 27
387581	387627	387673	387718	387764	387810	387855	387901	387947	387992	388038	16	4. 37
388129	388175	388221	388266	388312	388358	388403	388449	388494	388540	388586	15	1" = 9
388677	388723	388768	388814	388859	388905	388950	388996	389041	389087	389133	14	2. 18
389224	389269	389315	389360	389406	389451	389497	389542	389588	389633	389679	13	3. 27
389770	389815	389861	389906	389952	390007	390043	390088	390134	390179	390225	12	4. 36
390316	390361	390406	390452	390497	390543	390588	390634	390679	390724	390770	11	1" = 9
390861	390906	390951	390997	391042	391087	391133	391178	391224	391269	391314	10	2. 18
391405	391450	391496	391541	391586	391632	391677	391722	391768	391813	391858	9	3. 27
391949	391994	392039	392085	392130	392175	392220	392266	392311	392356	392401	8	4. 36
392492	392537	392582	392628	392673	392718	392763	392808	392854	392899	392944	7	1" = 9
393034	393080	393125	393170	393215	393260	393306	393351	393396	393441	393486	6	2. 18
393576	393622	393667	393712	393757	393802	393847	393892	393937	393983	394028	5	3. 27
394118	394163	394208	394253	394298	394343	394388	394433	394478	394524	394569	4	4. 36
394659	394704	394749	394794	394839	394884	394929	394974	395019	395064	395109	3	1" = 9
395199	395244	395289	395334	395379	395424	395469	395514	395559	395604	395649	2	2. 18
395739	395783	395828	395873	395918	395963	396008	396053	396098	396143	396188	1	3. 27
396278	396322	396367	396412	396457	396502	396547	396592	396637	396681	396726	0	4. 36
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.

Co-tangent of 76 degrees, or Tangent of 166 degrees.

LOGARITHMIC TANGENTS.

Tangent of 14 degrees, or Co-tangent of 104 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proport.
0	9.396771	396816	396861	396906	396950	396995	397040	397085	397130	397175	397219	397264	59	1"
1	9.397309	397354	397399	397443	397488	397533	397578	397622	397667	397712	397757	397802	58	2
2	9.397846	397891	397936	397981	398025	398070	398115	398159	398204	398249	398294	398338	57	3
3	9.398383	398428	398472	398517	398562	398606	398651	398696	398741	398785	398830	398874	56	4
4	9.398919	398964	399008	399053	399098	399142	399187	399232	399276	399321	399365	399410	55	1
5	9.399455	399499	399544	399588	399633	399678	399722	399767	399811	399856	399901	399945	54	2
6	9.399990	400034	400079	400123	400168	400212	400257	400301	400346	400391	400435	400480	53	3
7	9.400524	400569	400613	400658	400702	400747	400791	400836	400880	400924	400969	401013	52	4
8	9.401058	401102	401147	401191	401236	401280	401325	401369	401413	401458	401502	401547	51	1
9	9.401591	401636	401680	401724	401769	401813	401857	401902	401946	401991	402035	402079	50	2
10	9.402124	402168	402212	402257	402301	402346	402390	402434	402479	402523	402567	402612	49	3
11	9.402656	402700	402744	402789	402833	402877	402922	402966	403010	403055	403099	403143	48	4
12	9.403187	403232	403276	403320	403364	403409	403453	403497	403541	403586	403630	403674	47	1
13	9.403718	403762	403807	403851	403895	403939	403984	404028	404072	404116	404160	404204	46	2
14	9.404249	404293	404337	404381	404425	404469	404514	404558	404602	404646	404690	404734	45	3
15	9.404778	404823	404867	404911	404955	404999	405043	405087	405131	405175	405220	405264	44	4
16	9.405308	405352	405396	405440	405484	405528	405572	405616	405660	405704	405748	405792	43	1
17	9.405836	405880	405924	405968	406012	406056	406100	406144	406188	406232	406276	406320	42	2
18	9.406364	406408	406452	406496	406540	406584	406628	406672	406716	406760	406804	406848	41	3
19	9.406892	406936	406980	407024	407068	407112	407156	407199	407243	407287	407331	407375	40	4
20	9.407419	407463	407507	407551	407594	407638	407682	407726	407770	407814	407858	407902	39	1
21	9.407945	407989	408033	408077	408121	408165	408208	408252	408296	408340	408384	408427	38	2
22	9.408471	408515	408559	408603	408646	408690	408734	408778	408821	408865	408909	408953	37	3
23	9.408997	409040	409084	409128	409171	409215	409259	409303	409346	409390	409434	409478	36	4
24	9.409521	409565	409609	409652	409696	409740	409783	409827	409871	409914	409958	410002	35	1
25	9.410045	410089	410133	410176	410220	410264	410307	410351	410395	410438	410482	410525	34	2
26	9.410569	410613	410656	410700	410744	410787	410831	410874	410918	410961	411005	411049	33	3
27	9.411092	411136	411179	411223	411266	411310	411353	411397	411441	411484	411528	411571	32	4
28	9.411615	411658	411702	411745	411789	411832	411876	411919	411963	412006	412050	412093	31	1
29	9.412137	412180	412224	412267	412311	412354	412397	412441	412484	412528	412571	412615	30	2
30	9.412658	412702	412745	412788	412832	412875	412919	412962	413005	413049	413092	413136	29	3
31	9.413179	413222	413266	413309	413352	413396	413439	413483	413526	413569	413613	413656	28	4
32	9.413699	413743	413786	413829	413873	413916	413959	414003	414046	414089	414133	414176	27	1
33	9.414219	414262	414306	414349	414392	414436	414479	414522	414565	414609	414652	414695	26	2
34	9.414738	414782	414825	414868	414911	414955	414998	415041	415084	415127	415171	415214	25	3
35	9.415257	415300	415343	415387	415430	415473	415516	415559	415603	415646	415689	415732	24	4
36	9.415775	415818	415862	415905	415948	415991	416034	416077	416120	416164	416207	416250	23	1
37	9.416293	416336	416379	416422	416465	416508	416551	416595	416638	416681	416724	416767	22	2
38	9.416810	416853	416896	416939	416982	417025	417068	417111	417154	417197	417240	417284	21	3
39	9.417327	417370	417413	417456	417499	417542	417585	417628	417671	417714	417757	417800	20	4
40	9.417843	417886	417928	417971	418014	418057	418100	418143	418186	418229	418272	418315	19	1
41	9.418358	418401	418444	418487	418530	418573	418616	418658	418701	418744	418787	418830	18	2
42	9.418873	418916	418959	419002	419045	419087	419130	419173	419216	419259	419302	419345	17	3
43	9.419387	419430	419473	419516	419559	419602	419644	419687	419730	419773	419816	419858	16	4
44	9.419901	419944	419987	420030	420072	420115	420158	420201	420244	420286	420329	420372	15	1
45	9.420415	420457	420500	420543	420586	420628	420671	420714	420757	420799	420842	420885	14	2
46	9.420928	420970	421013	421056	421098	421141	421184	421226	421269	421312	421354	421397	13	3
47	9.421440	421482	421525	421568	421610	421653	421696	421738	421781	421824	421866	421909	12	4
48	9.421952	421994	422037	422079	422122	422165	422207	422250	422292	422335	422378	422420	11	1
49	9.422463	422505	422548	422591	422633	422676	422718	422761	422803	422846	422889	422931	10	2
50	9.422974	423016	423059	423101	423144	423186	423229	423271	423314	423356	423399	423441	9	3
51	9.423484	423526	423569	423611	423654	423696	423739	423781	423824	423866	423909	423951	8	4
52	9.423994	424036	424078	424121	424163	424206	424248	424291	424333	424375	424418	424460	7	1
53	9.424503	424545	424587	424630	424672	424715	424757	424799	424842	424884	424927	424969	6	2
54	9.425011	425054	425096	425138	425181	425223	425265	425308	425350	425393	425435	425477	5	3
55	9.425519	425562	425604	425646	425689	425731	425773	425816	425858	425900	425943	425985	4	4
56	9.426027	426069	426112	426154	426196	426238	426281	426323	426365	426408	426450	426492	3	1
57	9.426534	426576	426619	426661	426703	426745	426788	426830	426872	426914	426956	426999	2	2
58	9.427041	427083	427125	427167	427209	427252	427294	427336	427378	427420	427463	427505	1	3
59	9.427547	427589	427631	427673	427716	427758	427800	427842	427884	427926	427968	428010	0	4
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	
Co-tangent of 75 degrees, or Tangent of 165 degrees.														

LOGARITHMIC TANGENTS.

Minutes	Tangent of 16 degrees, or Co-tangent of 106 degrees.											
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	9.457496	457536	457576	457616	457655	457695	457735	457775	457814	457854	457894	457934
1	9.457973	458013	458052	458092	458132	458172	458211	458251	458291	458330	458370	458410
2	9.458449	458489	458529	458568	458608	458647	458687	458727	458766	458806	458846	458886
3	9.458925	458964	459004	459044	459083	459123	459163	459202	459242	459281	459321	459361
4	9.459400	459440	459479	459519	459558	459598	459638	459677	459717	459756	459796	459836
5	9.459875	459914	459954	459994	460033	460073	460112	460152	460191	460231	460270	460310
6	9.460349	460389	460428	460468	460507	460547	460586	460626	460665	460705	460744	460784
7	9.460823	460863	460902	460942	460981	461021	461060	461099	461139	461178	461218	461258
8	9.461297	461336	461376	461415	461454	461494	461533	461573	461612	461652	461691	461731
9	9.461770	461809	461849	461888	461927	461967	462006	462046	462085	462124	462164	462204
10	9.462242	462282	462321	462360	462400	462439	462479	462518	462557	462597	462636	462676
11	9.462715	462754	462793	462833	462872	462911	462951	462990	463029	463068	463108	463148
12	9.463186	463226	463265	463304	463343	463383	463422	463461	463501	463540	463579	463619
13	9.463658	463697	463736	463775	463815	463854	463893	463932	463972	464011	464050	464090
14	9.464129	464168	464207	464246	464285	464325	464364	464403	464442	464481	464521	464560
15	9.464599	464638	464677	464717	464756	464795	464834	464873	464912	464952	464991	465030
16	9.465069	465108	465147	465186	465226	465265	465304	465343	465382	465421	465460	465500
17	9.465539	465578	465617	465656	465695	465734	465773	465812	465851	465891	465930	465969
18	9.466008	466047	466086	466125	466164	466203	466242	466281	466320	466359	466398	466438
19	9.466477	466516	466555	466594	466633	466672	466711	466750	466789	466828	466867	466907
20	9.466945	466984	467023	467062	467101	467140	467179	467218	467257	467296	467335	467375
21	9.467413	467452	467491	467530	467569	467608	467647	467686	467724	467763	467802	467842
22	9.467880	467919	467958	467997	468036	468075	468114	468153	468192	468231	468270	468309
23	9.468347	468386	468425	468464	468503	468542	468581	468620	468659	468698	468737	468776
24	9.468814	468853	468892	468931	468970	469008	469047	469086	469125	469164	469203	469242
25	9.469280	469319	469358	469397	469435	469474	469513	469552	469591	469630	469669	469708
26	9.469746	469785	469824	469862	469901	469940	469979	470017	470056	470095	470134	470173
27	9.470211	470250	470289	470328	470366	470405	470444	470483	470521	470560	470599	470638
28	9.470676	470715	470754	470792	470831	470870	470909	470947	470986	471025	471063	471102
29	9.471141	471179	471218	471257	471296	471334	471373	471412	471450	471489	471528	471567
30	9.471605	471644	471682	471721	471760	471798	471837	471875	471914	471953	471991	472030
31	9.472069	472107	472146	472184	472223	472262	472300	472339	472377	472416	472455	472494
32	9.472532	472570	472609	472648	472686	472725	472763	472802	472841	472879	472918	472957
33	9.472995	473033	473072	473110	473149	473187	473226	473265	473303	473342	473380	473419
34	9.473457	473496	473534	473573	473611	473650	473688	473727	473765	473804	473842	473881
35	9.473919	473958	473996	474035	474073	474112	474150	474189	474227	474266	474304	474343
36	9.474381	474419	474458	474496	474535	474573	474612	474650	474689	474727	474766	474804
37	9.474842	474881	474919	474957	474996	475034	475073	475111	475149	475188	475226	475265
38	9.475303	475341	475380	475418	475456	475495	475533	475572	475610	475648	475687	475725
39	9.475763	475802	475840	475878	475917	475955	475993	476032	476070	476108	476147	476185
40	9.476223	476262	476300	476338	476377	476415	476453	476491	476530	476568	476606	476645
41	9.476683	476721	476759	476798	476836	476874	476913	476951	476989	477027	477066	477104
42	9.477142	477180	477219	477257	477295	477333	477372	477410	477448	477486	477524	477563
43	9.477601	477639	477677	477716	477754	477792	477830	477868	477907	477945	477983	478022
44	9.478059	478097	478136	478174	478212	478250	478288	478326	478365	478403	478441	478479
45	9.478517	478555	478594	478632	478670	478708	478746	478784	478822	478860	478898	478937
46	9.478975	479013	479051	479089	479127	479165	479203	479242	479280	479318	479356	479394
47	9.479432	479470	479508	479546	479584	479622	479660	479698	479737	479775	479813	479851
48	9.479889	479927	479965	480003	480041	480079	480117	480155	480193	480231	480269	480307
49	9.480345	480383	480421	480459	480497	480535	480573	480611	480649	480687	480725	480763
50	9.480801	480839	480877	480915	480953	480991	481029	481067	481105	481143	481181	481219
51	9.481257	481295	481333	481371	481408	481446	481484	481522	481560	481598	481636	481674
52	9.481712	481750	481788	481826	481863	481901	481939	481977	482015	482053	482091	482129
53	9.482167	482205	482242	482280	482318	482356	482394	482432	482470	482508	482546	482584
54	9.482621	482659	482697	482735	482772	482810	482848	482886	482924	482962	482999	483037
55	9.483075	483113	483151	483188	483226	483264	483302	483340	483377	483415	483453	483491
56	9.483529	483566	483604	483642	483680	483717	483755	483793	483831	483869	483906	483944
57	9.483982	484020	484057	484095	484133	484171	484208	484246	484284	484321	484359	484397
58	9.484435	484472	484510	484548	484585	484623	484661	484699	484736	484774	484812	484850
59	9.484887	484925	484962	485000	485038	485075	485113	485151	485188	485226	485264	485302
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'
Co-tangent of 73 degrees, or Tangent of 163 degrees.												

LOGARITHMIC TANGENTS.

Tangent of 17 degrees, or Co-tangent of 107 degrees.											Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
9485377	485414	485452	485490	485527	485565	485603	485640	485678	485715	485753	59	1" = 8
1485828	485866	485904	485941	485979	486016	486054	486092	486129	486167	486204	58	2. 15
2486280	486317	486355	486392	486430	486467	486505	486543	486580	486618	486655	57	3. 23
3486730	486768	486805	486843	486881	486918	486956	486993	487031	487068	487106	56	4. 30
3487181	487218	487256	487293	487331	487368	487406	487443	487481	487518	487556	55	1" = 8
3487631	487668	487706	487743	487781	487818	487856	487893	487931	487968	488006	54	2. 15
3488081	488118	488155	488193	488230	488268	488305	488343	488380	488418	488455	53	3. 23
12488530	488567	488605	488642	488680	488717	488754	488792	488829	488867	488904	52	4. 30
1488979	489016	489054	489091	489128	489166	489203	489240	489278	489315	489353	51	1" = 7
0489447	489465	489502	489539	489577	489614	489651	489689	489726	489763	489801	50	2. 15
8489875	489913	489950	489987	490025	490062	490099	490137	490174	490211	490249	49	3. 22
6490323	490360	490398	490435	490472	490510	490547	490584	490621	490659	490696	48	4. 30
3490771	490808	490845	490882	490920	490957	490994	491031	491069	491106	491143	47	1" = 7
0491218	491255	491292	491329	491366	491404	491441	491478	491515	491553	491590	46	2. 15
7491664	491701	491739	491776	491813	491850	491887	491924	491962	491999	492036	45	3. 22
3492110	492148	492185	492222	492259	492296	492333	492371	492408	492445	492482	44	4. 30
9492556	492593	492631	492668	492705	492742	492779	492816	492853	492890	492927	43	1" = 7
5493002	493039	493076	493113	493150	493187	493224	493261	493298	493336	493373	42	2. 15
0493447	493484	493521	493558	493595	493632	493669	493706	493743	493780	493817	41	3. 22
5493892	493929	493966	494003	494040	494077	494114	494151	494188	494225	494262	40	4. 30
9494336	494373	494410	494447	494484	494521	494558	494595	494632	494669	494706	39	1" = 7
3494780	494817	494854	494891	494928	494965	495002	495039	495076	495113	495150	38	2. 15
7495224	495260	495297	495334	495371	495408	495445	495482	495519	495556	495593	37	3. 22
0495667	495704	495741	495777	495814	495851	495888	495925	495962	495999	496036	36	4. 30
3496110	496146	496183	496220	496257	496294	496331	496368	496405	496442	496478	35	1" = 7
5496552	496589	496626	496663	496700	496736	496773	496810	496847	496884	496921	34	2. 15
7496994	497031	497068	497105	497142	497178	497215	497252	497289	497326	497362	33	3. 22
9497436	497473	497510	497546	497583	497620	497657	497694	497730	497767	497804	32	4. 29
1497877	497914	497951	497988	498024	498061	498098	498135	498171	498208	498245	31	1" = 7
2498318	498355	498392	498429	498465	498502	498539	498575	498612	498649	498686	30	2. 15
2498759	498796	498832	498869	498906	498943	498979	499016	499053	499089	499126	29	3. 22
3499199	499236	499273	499309	499346	499383	499419	499456	499493	499529	499566	28	4. 29
3499639	499676	499713	499749	499786	499822	499859	499896	499933	499969	500006	27	1" = 7
2500079	500115	500152	500189	500225	500262	500298	500335	500372	500408	500445	26	2. 15
1500518	500555	500591	500628	500664	500701	500737	500774	500811	500847	500884	25	3. 22
2500957	500993	501030	501067	501103	501140	501176	501213	501249	501286	501322	24	4. 29
7501395	501432	501468	501505	501541	501578	501614	501651	501687	501724	501760	23	1" = 7
7501833	501870	501906	501943	501979	502016	502052	502089	502125	502162	502198	22	2. 15
5502271	502308	502344	502381	502417	502453	502490	502526	502563	502599	502636	21	3. 22
5502709	502745	502781	502818	502854	502891	502927	502964	503000	503036	503073	20	4. 29
7503146	503182	503218	503255	503291	503328	503364	503400	503437	503473	503510	19	1" = 7
7503582	503619	503655	503691	503728	503764	503800	503837	503873	503910	503946	18	2. 15
5504019	504055	504091	504128	504164	504200	504237	504273	504309	504346	504382	17	3. 22
5504455	504491	504527	504563	504600	504636	504672	504709	504745	504781	504818	16	4. 29
1504890	504926	504963	504999	505035	505072	505108	505144	505180	505217	505253	15	1" = 7
7505325	505362	505398	505434	505470	505507	505543	505579	505615	505652	505688	14	2. 15
7505760	505796	505833	505869	505905	505941	505978	506014	506050	506086	506122	13	3. 22
5506195	506231	506267	506303	506340	506376	506412	506448	506484	506521	506557	12	4. 29
5506629	506665	506701	506738	506774	506810	506846	506882	506918	506954	506991	11	1" = 7
7507063	507099	507135	507171	507207	507244	507280	507316	507352	507388	507424	10	2. 14
7507496	507532	507569	507605	507641	507677	507713	507749	507785	507821	507857	9	3. 22
1507929	507966	508002	508038	508074	508110	508146	508182	508218	508254	508290	8	4. 29
5508362	508398	508434	508470	508506	508542	508578	508615	508651	508687	508723	7	1" = 7
5508795	508831	508867	508903	508939	508975	509011	509047	509083	509119	509155	6	2. 14
5509227	509263	509299	509335	509371	509407	509443	509479	509515	509551	509587	5	3. 22
5509668	509694	509730	509766	509802	509838	509874	509910	509946	509982	510018	4	4. 29
1510090	510126	510162	510198	510234	510269	510305	510341	510377	510413	510449	3	1" = 7
510521	510557	510593	510629	510664	510700	510736	510772	510808	510844	510880	2	2. 14
510952	510987	511023	511059	511095	511131	511167	511203	511239	511274	511310	1	3. 22
511382	511418	511454	511489	511525	511561	511597	511633	511669	511704	511740	0	4. 29
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-tangent of 72 degrees, or Tangent of 162 degrees.												

Co-tangent of 72 degrees, or Tangent of 162 degrees.

LOGARITHMIC TANGENTS.

Tangent of 18 degrees, or Co-tangent of 108 degrees.														Minutes	Proport. parts.
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
0	9.511776	511812	511848	511884	511919	511955	511991	512027	512063	512098	512134	512170	59	1 = 1	
1	9.512206	512242	512277	512313	512349	512385	512420	512456	512492	512528	512564	512599	58	2. 14	
2	9.512635	512671	512707	512742	512778	512814	512850	512885	512921	512957	512993	513028	57	3. 21	
3	9.513064	513100	513136	513171	513207	513243	513278	513314	513350	513386	513421	513457	56	4. 28	
4	9.513493	513528	513564	513600	513636	513671	513707	513743	513778	513814	513850	513885	55	1 = 1	
5	9.513921	513957	513992	514028	514064	514099	514135	514171	514206	514242	514278	514313	54	2. 14	
6	9.514349	514385	514420	514456	514492	514527	514563	514599	514634	514670	514705	514741	53	3. 21	
7	9.514777	514812	514848	514884	514919	514955	514990	515026	515062	515097	515133	515168	52	4. 28	
8	9.515204	515240	515275	515311	515346	515382	515417	515453	515489	515524	515560	515595	51	1 = 1	
9	9.515631	515666	515702	515738	515773	515809	515844	515880	515915	515951	515986	516022	50	2. 14	
10	9.516058	516093	516129	516164	516200	516235	516271	516306	516342	516377	516413	516448	49	3. 21	
11	9.516484	516519	516555	516590	516626	516661	516697	516732	516768	516803	516839	516874	48	4. 28	
12	9.516910	516945	516981	517016	517052	517087	517123	517158	517194	517229	517264	517300	47	1 = 1	
13	9.517335	517371	517406	517442	517477	517513	517548	517583	517619	517654	517690	517725	46	2. 14	
14	9.517761	517796	517831	517867	517902	517938	517973	518009	518044	518079	518115	518150	45	3. 21	
15	9.518186	518221	518256	518292	518327	518363	518398	518433	518469	518504	518539	518575	44	4. 28	
16	9.518610	518646	518681	518716	518752	518787	518822	518858	518893	518928	518964	518999	43	1 = 1	
17	9.519034	519070	519105	519140	519176	519211	519246	519282	519317	519352	519388	519423	42	2. 14	
18	9.519458	519494	519529	519564	519600	519635	519670	519706	519741	519776	519811	519847	41	3. 21	
19	9.519882	519917	519953	519988	520023	520058	520094	520129	520164	520199	520235	520270	40	4. 28	
20	9.520305	520341	520376	520411	520446	520482	520517	520552	520587	520622	520658	520693	39	1 = 1	
21	9.520728	520763	520799	520834	520869	520904	520940	520975	521010	521045	521080	521116	38	2. 14	
22	9.521151	521186	521221	521256	521292	521327	521362	521397	521433	521468	521503	521538	37	3. 21	
23	9.521573	521608	521643	521679	521714	521749	521784	521819	521854	521890	521925	521960	36	4. 28	
24	9.521995	522030	522065	522100	522136	522171	522206	522241	522276	522311	522346	522382	35	1 = 1	
25	9.522417	522452	522487	522522	522557	522592	522627	522662	522698	522733	522768	522803	34	2. 14	
26	9.522838	522873	522908	522943	522978	523013	523049	523084	523119	523154	523189	523224	33	3. 21	
27	9.523259	523294	523329	523364	523399	523434	523469	523504	523539	523574	523610	523645	32	4. 28	
28	9.523680	523715	523750	523785	523820	523855	523890	523925	523960	523995	524030	524065	31	1 = 1	
29	9.524100	524135	524170	524205	524240	524275	524310	524345	524380	524415	524450	524485	30	2. 14	
30	9.524520	524555	524590	524625	524660	524695	524730	524765	524800	524835	524870	524905	29	3. 21	
31	9.524940	524975	525010	525044	525079	525114	525149	525184	525219	525254	525289	525324	28	4. 28	
32	9.525359	525394	525429	525464	525499	525534	525568	525603	525638	525673	525708	525743	27	1 = 1	
33	9.525777	525813	525848	525883	525918	525952	525987	526022	526057	526092	526127	526162	26	2. 14	
34	9.526197	526232	526266	526301	526336	526371	526406	526441	526476	526510	526545	526580	25	3. 21	
35	9.526615	526650	526685	526720	526754	526789	526824	526859	526894	526929	526963	526998	24	4. 28	
36	9.527033	527068	527103	527138	527172	527207	527242	527277	527312	527346	527381	527416	23	1 = 1	
37	9.527451	527486	527520	527555	527590	527625	527660	527694	527729	527764	527799	527833	22	2. 14	
38	9.527868	527903	527938	527973	528007	528042	528077	528112	528146	528181	528216	528251	21	3. 21	
39	9.528285	528320	528355	528390	528424	528459	528494	528529	528563	528598	528633	528667	20	4. 28	
40	9.528702	528737	528772	528806	528841	528876	528910	528945	528980	529015	529049	529084	19	1 = 1	
41	9.529119	529153	529188	529223	529257	529292	529327	529361	529396	529431	529465	529500	18	2. 14	
42	9.529535	529569	529604	529639	529673	529708	529743	529777	529812	529847	529881	529916	17	3. 21	
43	9.529951	529985	530020	530055	530089	530124	530158	530193	530228	530262	530297	530331	16	4. 28	
44	9.530366	530401	530435	530470	530505	530539	530574	530608	530643	530678	530712	530747	15	1 = 1	
45	9.530781	530816	530850	530885	530920	530954	530989	531023	531058	531093	531127	531162	14	2. 14	
46	9.531196	531231	531265	531300	531334	531369	531404	531438	531473	531507	531542	531576	13	3. 21	
47	9.531611	531645	531680	531714	531749	531783	531818	531852	531887	531921	531956	531991	12	4. 28	
48	9.532025	532060	532094	532129	532163	532198	532232	532267	532301	532336	532370	532404	11	1 = 1	
49	9.532439	532473	532508	532542	532577	532611	532646	532680	532715	532749	532784	532818	10	2. 14	
50	9.532853	532887	532922	532956	532990	533025	533059	533094	533128	533163	533197	533231	9	3. 21	
51	9.533268	533302	533336	533370	533404	533438	533472	533507	533541	533575	533610	533644	8	4. 28	
52	9.533679	533713	533748	533782	533817	533851	533885	533920	533954	533988	534023	534057	7	1 = 1	
53	9.534092	534126	534160	534195	534229	534264	534298	534332	534367	534401	534435	534470	6	2. 14	
54	9.534504	534538	534573	534607	534641	534676	534710	534744	534779	534813	534847	534882	5	3. 21	
55	9.534916	534950	534985	535019	535053	535088	535122	535156	535191	535225	535259	535294	4	4. 28	
56	9.535328	535362	535396	535431	535465	535499	535534	535568	535602	535637	535671	535705	3	1 = 1	
57	9.535739	535774	535808	535842	535876	535911	535945	535979	536013	536048	536082	536116	2	2. 14	
58	9.536151	536185	536219	536253	536287	536322	536356	536390	536424	536459	536493	536527	1	3. 21	
59	9.536561	536596	536630	536664	536698	536732	536767	536801	536835	536869	536903	536938	0	4. 28	
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5	Minutes	Proport. parts.	
Co-tangent of 71 degrees, or Tangent of 161 degrees.															

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LOGARITHMIC TANGENTS.

Tangent of 19 degrees, or Co-tangent of 109 degrees.											Minute	Proport. parts.
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°		
972	537006	537040	537074	537109	537143	537177	537211	537245	537280	537314	59	1" = 7
382	537416	537450	537485	537519	537553	537587	537621	537655	537690	537724	58	2. 14
792	537826	537860	537895	537929	537963	537997	538031	538065	538099	538133	57	3. 20
202	538236	538270	538304	538338	538372	538406	538441	538475	538509	538543	56	4. 27
611	538645	538679	538713	538747	538781	538816	538850	538884	538918	538952	55	1" = 7
020	539054	539088	539122	539156	539190	539224	539259	539293	539327	539361	54	2. 14
429	539463	539497	539531	539565	539599	539633	539667	539701	539735	539769	53	3. 20
837	539871	539905	539939	539973	540007	540041	540075	540109	540143	540177	52	4. 27
245	540279	540313	540347	540381	540415	540449	540483	540517	540551	540585	51	1" = 7
653	540687	540721	540755	540789	540823	540857	540891	540925	540959	540993	50	2. 14
061	541095	541129	541162	541196	541230	541264	541298	541332	541366	541400	49	3. 20
468	541502	541536	541570	541604	541637	541671	541705	541739	541773	541807	48	4. 27
875	541909	541943	541976	542010	542044	542078	542112	542146	542180	542214	47	1" = 7
281	542315	542349	542383	542417	542451	542485	542518	542552	542586	542620	46	2. 14
688	542722	542756	542789	542823	542857	542891	542925	542958	542992	543026	45	3. 20
094	543128	543161	543195	543229	543264	543297	543330	543364	543398	543432	44	4. 27
499	543533	543567	543601	543635	543668	543702	543736	543770	543804	543837	43	1" = 7
905	543939	543972	544006	544040	544074	544107	544141	544175	544209	544243	42	2. 14
310	544344	544378	544411	544445	544479	544512	544546	544580	544614	544647	41	3. 20
715	544749	544782	544816	544850	544883	544917	544951	544985	545018	545052	40	4. 27
119	545153	545187	545220	545254	545288	545322	545355	545389	545423	545456	39	1" = 7
524	545557	545591	545625	545658	545692	545726	545759	545793	545827	545860	38	2. 13
928	545961	545995	546029	546062	546096	546129	546163	546197	546230	546264	37	3. 20
331	546368	546399	546432	546466	546499	546533	546567	546600	546634	546667	36	4. 27
735	546768	546802	546835	546869	546903	546936	546970	547003	547037	547071	35	1" = 7
138	547171	547205	547238	547272	547306	547339	547373	547406	547440	547473	34	2. 13
541	547574	547608	547641	547675	547708	547742	547775	547809	547842	547876	33	3. 20
943	547977	548010	548044	548077	548111	548144	548178	548211	548245	548278	32	4. 27
345	548379	548412	548446	548479	548513	548546	548580	548613	548647	548680	31	1" = 7
747	548781	548814	548848	548881	548915	548948	548981	549015	549048	549082	30	2. 13
149	549182	549216	549249	549283	549316	549349	549383	549416	549450	549483	29	3. 20
550	549584	549617	549650	549684	549717	549751	549784	549817	549851	549884	28	4. 27
951	549985	550018	550051	550085	550118	550152	550185	550218	550252	550285	27	1" = 7
352	550385	550419	550452	550485	550519	550552	550586	550619	550652	550686	26	2. 13
753	550786	550819	550852	550886	550919	550953	550986	551019	551053	551086	25	3. 20
155	551186	551219	551253	551286	551319	551353	551386	551419	551453	551486	24	4. 27
556	551586	551619	551652	551686	551719	551752	551786	551819	551852	551886	23	1" = 7
957	551985	552019	552052	552085	552119	552152	552185	552218	552252	552285	22	2. 13
358	552385	552418	552451	552484	552518	552551	552584	552618	552651	552684	21	3. 20
759	552784	552817	552850	552883	552917	552950	552983	553016	553050	553083	20	4. 27
160	553182	553216	553249	553282	553315	553349	553382	553415	553448	553481	19	1" = 7
561	553581	553614	553647	553681	553714	553747	553780	553813	553846	553880	18	2. 13
962	553979	554012	554045	554079	554112	554145	554178	554211	554244	554278	17	3. 20
363	554377	554410	554443	554476	554510	554543	554576	554609	554642	554675	16	4. 27
764	554775	554808	554841	554874	554907	554940	554973	555006	555040	555073	15	1" = 7
165	555172	555205	555238	555271	555304	555337	555371	555404	555437	555470	14	2. 13
566	555569	555602	555635	555668	555701	555734	555767	555801	555834	555867	13	3. 20
967	555966	555999	556032	556065	556098	556131	556164	556197	556230	556263	12	4. 27
368	556362	556395	556428	556461	556494	556527	556560	556593	556626	556659	11	1" = 7
769	556759	556792	556825	556858	556891	556924	556957	556990	557023	557056	10	2. 13
170	557154	557187	557220	557253	557286	557319	557352	557385	557418	557451	9	3. 20
571	557550	557583	557616	557649	557682	557715	557748	557781	557814	557847	8	4. 27
972	557946	557978	558011	558044	558077	558110	558143	558176	558209	558242	7	1" = 7
373	558341	558374	558407	558439	558472	558505	558538	558571	558604	558637	6	2. 13
774	558735	558768	558801	558834	558867	558900	558933	558966	558999	559031	5	3. 20
175	559130	559163	559196	559229	559261	559294	559327	559360	559393	559426	4	4. 27
576	559524	559557	559590	559623	559656	559688	559721	559754	559787	559820	3	1" = 7
977	559918	559951	559984	560017	560050	560082	560115	560148	560181	560214	2	2. 13
378	560312	560345	560378	560410	560443	560476	560509	560542	560574	560607	1	3. 20
779	560705	560738	560771	560804	560837	560869	560902	560935	560968	561000	0	4. 27
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minute	Proport. parts.
Co-tangent of 70 degrees, or Tangent of 160 degrees.											Minute	Proport. parts.

LOGARITHMIC TANGENTS.

Minutes	Tangent of 20 degrees, or Co-tangent of 110 degrees.												Minutes
	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	
0	9.561066	561099	561131	561164	561197	561230	561262	561295	561328	561361	561393	561426	0
1	9.561459	561492	561524	561557	561590	561622	561655	561688	561721	561753	561786	561819	1
2	9.561852	561884	561917	561950	561982	562015	562048	562080	562113	562146	562179	562211	2
3	9.562244	562277	562309	562342	562375	562407	562440	562473	562505	562538	562571	562603	3
4	9.562636	562669	562701	562734	562767	562799	562832	562865	562897	562930	562963	562995	4
5	9.563028	563061	563093	563126	563158	563191	563224	563256	563289	563322	563354	563387	5
6	9.563419	563452	563485	563517	563550	563583	563615	563648	563680	563713	563746	563778	6
7	9.563811	563843	563876	563909	563941	563974	564006	564039	564072	564104	564137	564169	7
8	9.564202	564234	564267	564300	564332	564365	564397	564430	564462	564495	564527	564560	8
9	9.564593	564625	564658	564690	564723	564755	564788	564820	564853	564886	564918	564951	9
10	9.564983	565016	565048	565081	565113	565146	565178	565211	565243	565276	565308	565341	10
11	9.565373	565406	565438	565471	565503	565536	565568	565601	565633	565666	565698	565731	11
12	9.565763	565796	565828	565861	565893	565926	565958	565991	566023	566056	566088	566121	12
13	9.566153	566185	566218	566250	566283	566315	566348	566380	566413	566445	566478	566510	13
14	9.566542	566575	566607	566640	566672	566705	566737	566770	566802	566834	566867	566899	14
15	9.566932	566964	566996	567029	567061	567094	567126	567159	567191	567223	567256	567288	15
16	9.567321	567353	567385	567418	567450	567483	567515	567547	567580	567612	567644	567677	16
17	9.567709	567742	567774	567806	567839	567871	567903	567936	567968	568000	568033	568065	17
18	9.568098	568130	568162	568195	568227	568259	568292	568324	568356	568389	568421	568453	18
19	9.568486	568518	568550	568583	568615	568647	568680	568712	568744	568777	568809	568841	19
20	9.568874	568906	568938	568970	569003	569035	569067	569100	569132	569164	569197	569229	20
21	9.569261	569293	569326	569358	569390	569423	569455	569487	569519	569552	569584	569616	21
22	9.569648	569681	569713	569745	569778	569810	569842	569874	569907	569939	569971	570003	22
23	9.570036	570068	570100	570132	570164	570197	570229	570261	570293	570326	570358	570390	23
24	9.570422	570455	570487	570519	570551	570583	570616	570648	570680	570712	570744	570777	24
25	9.570809	570841	570873	570905	570938	570970	571002	571034	571066	571099	571131	571163	25
26	9.571195	571227	571260	571292	571324	571356	571388	571420	571453	571485	571517	571549	26
27	9.571581	571613	571646	571678	571710	571742	571774	571806	571838	571871	571903	571935	27
28	9.571967	571999	572031	572063	572095	572128	572160	572192	572224	572256	572288	572320	28
29	9.572352	572385	572417	572449	572481	572513	572545	572577	572609	572641	572674	572706	29
30	9.572738	572770	572802	572834	572866	572898	572930	572962	572994	573026	573059	573091	30
31	9.573123	573155	573187	573219	573251	573283	573315	573347	573379	573411	573443	573475	31
32	9.573507	573539	573572	573604	573636	573668	573700	573732	573764	573796	573828	573860	32
33	9.573892	573924	573956	573988	574020	574052	574084	574116	574148	574180	574212	574244	33
34	9.574276	574308	574340	574372	574404	574436	574468	574500	574532	574564	574596	574628	34
35	9.574660	574692	574724	574756	574788	574820	574852	574884	574916	574948	574980	575012	35
36	9.575044	575076	575108	575140	575172	575204	575236	575268	575299	575331	575363	575395	36
37	9.575427	575459	575491	575523	575555	575587	575619	575651	575683	575715	575747	575779	37
38	9.575810	575842	575874	575906	575938	575970	576002	576034	576066	576098	576130	576162	38
39	9.576193	576225	576257	576289	576321	576353	576385	576417	576449	576480	576512	576544	39
40	9.576576	576608	576640	576672	576704	576736	576767	576799	576831	576863	576895	576927	40
41	9.576959	576990	577022	577054	577086	577118	577150	577182	577213	577245	577277	577309	41
42	9.577341	577373	577404	577436	577468	577500	577532	577564	577595	577627	577659	577691	42
43	9.577723	577755	577786	577818	577850	577882	577914	577945	577977	578009	578041	578073	43
44	9.578104	578136	578168	578200	578232	578263	578295	578327	578359	578390	578422	578454	44
45	9.578486	578518	578549	578581	578613	578645	578676	578708	578740	578772	578803	578835	45
46	9.578867	578899	578930	578962	578994	579026	579057	579089	579121	579153	579184	579216	46
47	9.579248	579280	579311	579343	579375	579407	579438	579470	579502	579533	579565	579597	47
48	9.579629	579660	579692	579724	579755	579787	579819	579851	579882	579914	579946	579977	48
49	9.580009	580041	580072	580104	580136	580167	580199	580231	580263	580294	580326	580358	49
50	9.580389	580421	580453	580484	580516	580548	580579	580611	580643	580674	580706	580738	50
51	9.580769	580801	580832	580864	580896	580927	580959	580991	581022	581054	581086	581117	51
52	9.581149	581180	581212	581244	581275	581307	581339	581370	581402	581433	581465	581497	52
53	9.581528	581560	581592	581623	581655	581686	581718	581750	581781	581813	581844	581876	53
54	9.581907	581939	581971	582002	582034	582065	582097	582129	582160	582192	582223	582255	54
55	9.582286	582318	582350	582381	582413	582444	582476	582507	582539	582570	582602	582634	55
56	9.582665	582697	582728	582760	582791	582823	582854	582886	582917	582949	582981	583012	56
57	9.583044	583075	583107	583138	583170	583201	583233	583264	583296	583327	583359	583390	57
58	9.583422	583453	583485	583516	583548	583579	583611	583642	583674	583705	583737	583768	58
59	9.583800	583831	583863	583894	583926	583957	583989	584020	584052	584083	584115	584146	59
Minutes	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5	Minutes
Co-tangent of 69 degrees, or Tangent of 159 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 21 degrees, or Co-tangent of 111 degrees.															Minutes	Proport. parts.
	0	5	10	15	20	25	30	35	40	45	50	55				
0	9.584177	584209	584240	584272	584303	584335	584366	584398	584429	584461	584492	584524	59	1" = 6		
1	9.584555	584586	584618	584649	584681	584712	584744	584775	584806	584838	584869	584901	58	2. 13		
2	9.584933	584964	584995	585026	585058	585089	585121	585152	585184	585215	585246	585278	57	3. 19		
3	9.585309	585341	585372	585403	585435	585466	585498	585529	585560	585592	585623	585655	56	4. 25		
4	9.585686	585717	585749	585780	585811	585843	585874	585906	585937	585968	586000	586031	55	1 = 6		
5	9.586062	586094	586125	586157	586188	586219	586251	586282	586313	586345	586376	586407	54	2. 13		
6	9.586439	586470	586501	586533	586564	586595	586627	586658	586689	586721	586752	586783	53	3. 19		
7	9.586815	586846	586877	586909	586940	586971	587003	587034	587065	587097	587128	587159	52	4. 25		
8	9.587190	587222	587253	587284	587316	587347	587378	587410	587441	587472	587503	587535	51	1 = 6		
9	9.587566	587597	587629	587660	587691	587722	587754	587785	587816	587847	587879	587910	50	2. 13		
0	9.587941	587973	588004	588035	588066	588098	588129	588160	588191	588223	588254	588285	49	3. 19		
1	9.588316	588348	588379	588410	588441	588473	588504	588535	588566	588598	588629	588660	48	4. 25		
2	9.588691	588722	588754	588785	588816	588847	588879	588910	588941	588972	589003	589035	47	1 = 6		
3	9.589066	589097	589128	589159	589191	589222	589253	589284	589315	589347	589378	589409	46	2. 12		
4	9.589440	589471	589503	589534	589565	589596	589627	589658	589690	589721	589752	589783	45	3. 19		
5	9.589814	589845	589877	589908	589939	589970	590001	590032	590064	590095	590126	590157	44	4. 25		
6	9.590188	590219	590250	590282	590313	590344	590375	590406	590437	590468	590499	590531	43	1 = 6		
7	9.590562	590593	590624	590655	590686	590717	590748	590780	590811	590842	590873	590904	42	2. 12		
8	9.590935	590966	590997	591028	591060	591091	591122	591153	591184	591215	591246	591277	41	3. 19		
9	9.591308	591339	591370	591402	591433	591464	591495	591526	591557	591588	591619	591650	40	4. 25		
0	9.591681	591712	591743	591774	591805	591837	591868	591899	591930	591961	591992	592023	39	1 = 6		
1	9.592054	592085	592116	592147	592178	592209	592240	592271	592302	592333	592364	592395	38	2. 12		
2	9.592426	592457	592488	592519	592550	592581	592612	592644	592675	592706	592737	592768	37	3. 19		
3	9.592799	592830	592861	592892	592923	592954	592985	593016	593047	593078	593109	593140	36	4. 25		
4	9.593171	593202	593233	593264	593295	593325	593356	593387	593418	593449	593480	593511	35	1 = 6		
5	9.593542	593573	593604	593635	593666	593697	593728	593759	593790	593821	593852	593883	34	2. 12		
6	9.593914	593945	593976	594007	594038	594069	594100	594130	594161	594192	594223	594254	33	3. 19		
7	9.594285	594316	594347	594378	594409	594440	594471	594502	594533	594563	594594	594625	32	4. 25		
8	9.594656	594687	594718	594749	594780	594811	594842	594873	594903	594934	594965	594996	31	1 = 6		
9	9.595027	595058	595089	595120	595151	595181	595212	595243	595274	595305	595336	595367	30	2. 12		
0	9.595398	595428	595459	595490	595521	595552	595583	595614	595645	595675	595706	595737	29	3. 19		
1	9.595768	595799	595830	595860	595891	595922	595953	595984	596015	596046	596076	596107	28	4. 25		
2	9.596138	596169	596200	596231	596261	596292	596323	596354	596385	596416	596446	596477	27	1 = 6		
3	9.596508	596539	596570	596600	596631	596662	596693	596724	596754	596785	596816	596847	26	2. 12		
4	9.596878	596908	596939	596970	597001	597032	597062	597093	597124	597155	597186	597216	25	3. 18		
5	9.597247	597278	597309	597339	597370	597401	597432	597462	597493	597524	597555	597586	24	4. 25		
6	9.597616	597647	597678	597709	597739	597770	597801	597832	597862	597893	597924	597955	23	1 = 6		
7	9.597985	598016	598047	598077	598108	598139	598170	598200	598231	598262	598293	598323	22	2. 12		
8	9.598354	598385	598415	598446	598477	598508	598538	598569	598600	598630	598661	598692	21	3. 18		
9	9.598723	598753	598784	598815	598845	598876	598907	598937	598968	598999	599029	599060	20	4. 25		
0	9.599091	599122	599152	599183	599214	599244	599275	599306	599336	599367	599398	599428	19	1 = 6		
1	9.599459	599490	599520	599551	599582	599612	599643	599673	599704	599735	599765	599796	18	2. 12		
2	9.599827	599857	599888	599919	599949	599980	600011	600041	600072	600102	600133	600164	17	3. 18		
3	9.600194	600225	600256	600286	600317	600347	600378	600409	600439	600470	600501	600531	16	4. 25		
4	9.600562	600592	600623	600654	600684	600715	600745	600776	600807	600837	600868	600898	15	1 = 6		
5	9.600929	600959	600990	601021	601051	601082	601112	601143	601174	601204	601235	601265	14	2. 12		
6	9.601296	601326	601357	601388	601418	601449	601479	601510	601540	601571	601601	601632	13	3. 18		
7	9.601663	601693	601724	601754	601785	601815	601846	601876	601907	601937	601968	601999	12	4. 24		
8	9.602029	602060	602090	602121	602151	602182	602212	602243	602273	602304	602334	602365	11	1 = 6		
9	9.602395	602426	602456	602487	602517	602548	602578	602609	602639	602670	602700	602731	10	2. 12		
0	9.602761	602792	602822	602853	602883	602914	602944	602975	603005	603036	603066	603097	9	3. 18		
1	9.603127	603158	603188	603219	603249	603280	603310	603340	603371	603401	603432	603462	8	4. 24		
2	9.603493	603523	603554	603584	603615	603645	603676	603706	603736	603767	603797	603828	7	1 = 6		
3	9.603858	603889	603919	603949	603980	604010	604041	604071	604102	604132	604162	604193	6	2. 12		
4	9.604223	604254	604284	604315	604345	604375	604406	604436	604467	604497	604527	604558	5	3. 18		
5	9.604588	604619	604649	604679	604710	604740	604771	604801	604831	604862	604892	604923	4	4. 24		
6	9.604953	604983	605014	605044	605074	605105	605135	605166	605196	605226	605257	605287	3	1 = 6		
7	9.605317	605348	605378	605409	605439	605469	605500	605530	605560	605591	605621	605651	2	2. 12		
8	9.605682	605712	605742	605773	605803	605833	605864	605894	605924	605955	605985	606015	1	3. 18		
9	9.606046	606076	606106	606137	606167	606197	606228	606258	606288	606319	606349	606379	0	4. 24		
	60	55	50	45	40	35	30	25	20	15	10	5	Minutes	Proport. parts.		
Co-tangent of 68 degrees, or Tangent of 158 degrees.																

LOGARITHMIC TANGENTS.

Minutes		Tangent of 22 degrees, or Co-tangent of 112 degrees.												Minutes	Proper parts.
		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
0	9.606410	9.606440	9.606470	9.606501	9.606531	9.606561	9.606591	9.606622	9.606652	9.606682	9.606713	9.606743	9.606773	50	1 = 1
1	9.606773	9.606804	9.606834	9.606864	9.606894	9.606925	9.606955	9.606985	9.607016	9.607046	9.607076	9.607106	9.607137	51	2 = 1
2	9.607137	9.607167	9.607197	9.607227	9.607258	9.607288	9.607318	9.607348	9.607379	9.607409	9.607439	9.607470	9.607500	52	3 = 1
3	9.607500	9.607530	9.607560	9.607591	9.607621	9.607651	9.607681	9.607712	9.607742	9.607772	9.607802	9.607833	9.607863	53	4 = 1
4	9.607863	9.607893	9.607923	9.607953	9.607984	9.608014	9.608044	9.608074	9.608105	9.608135	9.608165	9.608195	9.608225	54	1 = 1
5	9.608225	9.608256	9.608286	9.608316	9.608346	9.608377	9.608407	9.608437	9.608467	9.608497	9.608528	9.608558	9.608588	55	2 = 1
6	9.608588	9.608618	9.608648	9.608679	9.608709	9.608739	9.608769	9.608799	9.608830	9.608860	9.608890	9.608920	9.608950	56	3 = 1
7	9.608950	9.608980	9.609011	9.609041	9.609071	9.609101	9.609131	9.609162	9.609192	9.609222	9.609252	9.609282	9.609312	57	4 = 1
8	9.609312	9.609343	9.609373	9.609403	9.609433	9.609463	9.609493	9.609524	9.609554	9.609584	9.609614	9.609644	9.609674	58	1 = 1
9	9.609674	9.609704	9.609735	9.609765	9.609795	9.609825	9.609855	9.609885	9.609915	9.609946	9.609976	9.610006	9.610036	59	2 = 1
10	9.610036	9.610066	9.610096	9.610126	9.610156	9.610187	9.610217	9.610247	9.610277	9.610307	9.610337	9.610367	9.610397	60	3 = 1
11	9.610397	9.610427	9.610458	9.610488	9.610518	9.610548	9.610578	9.610608	9.610638	9.610668	9.610698	9.610729	9.610759	61	4 = 1
12	9.610759	9.610789	9.610819	9.610849	9.610879	9.610909	9.610939	9.610969	9.610999	9.611029	9.611059	9.611089	9.611119	62	1 = 1
13	9.611119	9.611149	9.611179	9.611209	9.611239	9.611269	9.611299	9.611329	9.611359	9.611389	9.611419	9.611449	9.611479	63	2 = 1
14	9.611479	9.611509	9.611539	9.611569	9.611599	9.611629	9.611659	9.611689	9.611719	9.611749	9.611779	9.611809	9.611839	64	3 = 1
15	9.611839	9.611869	9.611899	9.611929	9.611959	9.611989	9.612019	9.612049	9.612079	9.612109	9.612139	9.612169	9.612199	65	4 = 1
16	9.612199	9.612229	9.612259	9.612289	9.612319	9.612349	9.612379	9.612409	9.612439	9.612469	9.612499	9.612529	9.612559	66	1 = 1
17	9.612559	9.612589	9.612619	9.612649	9.612679	9.612709	9.612739	9.612769	9.612799	9.612829	9.612859	9.612889	9.612919	67	2 = 1
18	9.612919	9.612949	9.612979	9.613009	9.613039	9.613069	9.613099	9.613129	9.613159	9.613189	9.613219	9.613249	9.613279	68	3 = 1
19	9.613279	9.613309	9.613339	9.613369	9.613399	9.613429	9.613459	9.613489	9.613519	9.613549	9.613579	9.613609	9.613639	69	4 = 1
20	9.613639	9.613669	9.613699	9.613729	9.613759	9.613789	9.613819	9.613849	9.613879	9.613909	9.613939	9.613969	9.613999	70	1 = 1
21	9.613999	9.614029	9.614059	9.614089	9.614119	9.614149	9.614179	9.614209	9.614239	9.614269	9.614299	9.614329	9.614359	71	2 = 1
22	9.614359	9.614389	9.614419	9.614449	9.614479	9.614509	9.614539	9.614569	9.614599	9.614629	9.614659	9.614689	9.614719	72	3 = 1
23	9.614719	9.614749	9.614779	9.614809	9.614839	9.614869	9.614899	9.614929	9.614959	9.614989	9.615019	9.615049	9.615079	73	4 = 1
24	9.615079	9.615109	9.615139	9.615169	9.615199	9.615229	9.615259	9.615289	9.615319	9.615349	9.615379	9.615409	9.615439	74	1 = 1
25	9.615439	9.615469	9.615499	9.615529	9.615559	9.615589	9.615619	9.615649	9.615679	9.615709	9.615739	9.615769	9.615799	75	2 = 1
26	9.615799	9.615829	9.615859	9.615889	9.615919	9.615949	9.615979	9.616009	9.616039	9.616069	9.616099	9.616129	9.616159	76	3 = 1
27	9.616159	9.616189	9.616219	9.616249	9.616279	9.616309	9.616339	9.616369	9.616399	9.616429	9.616459	9.616489	9.616519	77	4 = 1
28	9.616519	9.616549	9.616579	9.616609	9.616639	9.616669	9.616699	9.616729	9.616759	9.616789	9.616819	9.616849	9.616879	78	1 = 1
29	9.616879	9.616909	9.616939	9.616969	9.616999	9.617029	9.617059	9.617089	9.617119	9.617149	9.617179	9.617209	9.617239	79	2 = 1
30	9.617239	9.617269	9.617299	9.617329	9.617359	9.617389	9.617419	9.617449	9.617479	9.617509	9.617539	9.617569	9.617599	80	3 = 1
31	9.617599	9.617629	9.617659	9.617689	9.617719	9.617749	9.617779	9.617809	9.617839	9.617869	9.617899	9.617929	9.617959	81	4 = 1
32	9.617959	9.617989	9.618019	9.618049	9.618079	9.618109	9.618139	9.618169	9.618199	9.618229	9.618259	9.618289	9.618319	82	1 = 1
33	9.618319	9.618349	9.618379	9.618409	9.618439	9.618469	9.618499	9.618529	9.618559	9.618589	9.618619	9.618649	9.618679	83	2 = 1
34	9.618679	9.618709	9.618739	9.618769	9.618799	9.618829	9.618859	9.618889	9.618919	9.618949	9.618979	9.619009	9.619039	84	3 = 1
35	9.619039	9.619069	9.619099	9.619129	9.619159	9.619189	9.619219	9.619249	9.619279	9.619309	9.619339	9.619369	9.619399	85	4 = 1
36	9.619399	9.619429	9.619459	9.619489	9.619519	9.619549	9.619579	9.619609	9.619639	9.619669	9.619699	9.619729	9.619759	86	1 = 1
37	9.619759	9.619789	9.619819	9.619849	9.619879	9.619909	9.619939	9.619969	9.619999	9.620029	9.620059	9.620089	9.620119	87	2 = 1
38	9.620119	9.620149	9.620179	9.620209	9.620239	9.620269	9.620299	9.620329	9.620359	9.620389	9.620419	9.620449	9.620479	88	3 = 1
39	9.620479	9.620509	9.620539	9.620569	9.620599	9.620629	9.620659	9.620689	9.620719	9.620749	9.620779	9.620809	9.620839	89	4 = 1
40	9.620839	9.620869	9.620899	9.620929	9.620959	9.620989	9.621019	9.621049	9.621079	9.621109	9.621139	9.621169	9.621199	90	1 = 1
41	9.621199	9.621229	9.621259	9.621289	9.621319	9.621349	9.621379	9.621409	9.621439	9.621469	9.621499	9.621529	9.621559	91	2 = 1
42	9.621559	9.621589	9.621619	9.621649	9.621679	9.621709	9.621739	9.621769	9.621799	9.621829	9.621859	9.621889	9.621919	92	3 = 1
43	9.621919	9.621949	9.621979	9.622009	9.622039	9.622069	9.622099	9.622129	9.622159	9.622189	9.622219	9.622249	9.622279	93	4 = 1
44	9.622279	9.622309	9.622339	9.622369	9.622399	9.622429	9.622459	9.622489	9.622519	9.622549	9.622579	9.622609	9.622639	94	1 = 1
45	9.622639	9.622669	9.622699	9.622729	9.622759	9.622789	9.622819	9.622849	9.622879	9.622909	9.622939	9.622969	9.622999	95	2 = 1
46	9.622999	9.623029	9.623059	9.623089	9.623119	9.623149	9.623179	9.623209	9.623239	9.623269	9.623299	9.623329	9.623359	96	3 = 1
47	9.623359	9.623389	9.623419	9.623449	9.623479	9.623509	9.623539	9.623569	9.623599	9.623629	9.623659	9.623689	9.623719	97	4 = 1
48	9.623719	9.623749	9.623779	9.623809	9.623839	9.623869	9.623899	9.623929	9.623959	9.623989	9.624019	9.624049	9.624079	98	1 = 1
49	9.624079	9.624109	9.624139	9.624169	9.624199	9.624229	9.624259	9.624289	9.624319	9.624349	9.624379	9.624409	9.624439	99	2 = 1
50	9.624439	9.624469	9.624499	9.624529	9.624559	9.624589	9.624619	9.624649	9.624679	9.624709	9.624739	9.624769	9.624799	100	3 = 1
51	9.624799	9.624829	9.624859	9.624889	9.624919	9.624949	9.624979	9.625009	9.625039	9.625069	9.625099	9.625129	9.625159	101	4 = 1
52	9.625159	9.625189	9.625219	9.625249	9.625279	9.625309	9.625339	9.625369	9.625399	9.625429	9.625459	9.625489	9.625519	102	1 = 1
53	9.625519	9.625549	9.625579	9.625609	9.625639	9.625669	9.625699	9.625729	9.625759	9.625789	9.625819	9.625849	9.625879	103	2 = 1
54	9.625879	9.625909	9.625939	9.625969	9.625999	9.626029	9.626059	9.626089	9.626119	9.626149	9.626179	9.626209	9.626239	104	3 = 1
55	9.626239	9.626269	9.626299	9.626329	9.626359	9.626389	9.626419	9.626449	9.626479	9.626509	9.626539	9.626569	9.626599	105	4 = 1
56	9.626599	9.626629	9.626659	9.626689	9.626719	9.626749	9.626779	9.626809	9.626839	9.626869	9.626899	9.626929	9.626959	106	1 = 1
57	9.626959	9.626989	9.627019	9.627049	9.627079	9.627109	9.627139	9.627169	9.627199	9.627229	9.627259	9.627289	9.627319	107	2 = 1
58	9.627319	9.627349	9.627379	9.627409	9.627439	9.627469	9.627499	9.627529	9.627559	9.627589	9.627619	9.627649	9.627679	108	3 = 1
59	9.627679	9.627709	9.627739	9.627769	9.627799	9.627829	9.627859	9.627889	9.627919	9.627949	9.627979	9.628009	9.628039	109	4 = 1
60	9.628039	9.628069	9.628099	9.628129	9.628159	9.628189	9.628219	9							

LOGARITHMIC TANGENTS.

Tangent of 23 degrees, or Co-tangent of 113 degrees.											Minutes	Proport. parts.
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
52	627881	627911	627940	627969	627998	628028	628057	628086	628115	628145	59	1" = 6
53	628232	628262	628291	628320	628349	628379	628408	628437	628466	628496	58	2. 12
54	628583	628613	628642	628671	628700	628729	628759	628788	628817	628846	57	3. 18
55	628934	628963	628992	629022	629051	629080	629109	629139	629168	629197	56	4. 23
56	629285	629314	629343	629372	629401	629431	629460	629489	629518	629547	55	1 = 6
57	629635	629664	629693	629722	629752	629781	629810	629839	629868	629898	54	2. 12
58	629985	630014	630043	630073	630102	630131	630160	630189	630218	630248	53	3. 18
59	630335	630364	630393	630422	630452	630481	630510	630539	630568	630597	52	4. 23
60	630685	630714	630743	630772	630801	630830	630860	630889	630918	630947	51	1 = 6
61	631034	631063	631093	631122	631151	631180	631209	631238	631267	631296	50	2. 12
62	631384	631413	631442	631471	631500	631529	631558	631587	631616	631646	49	3. 17
63	631733	631762	631791	631820	631849	631878	631907	631936	631966	631995	48	4. 23
64	632082	632111	632140	632169	632198	632227	632256	632285	632314	632343	47	1 = 6
65	632431	632460	632489	632518	632547	632576	632605	632634	632663	632692	46	2. 12
66	632779	632808	632837	632866	632895	632924	632953	632982	633011	633040	45	3. 17
67	633128	633157	633186	633215	633244	633273	633302	633331	633360	633389	44	4. 23
68	633476	633505	633534	633563	633592	633621	633650	633679	633708	633737	43	1 = 6
69	633824	633853	633882	633911	633940	633969	633998	634027	634056	634085	42	2. 12
70	634172	634201	634230	634259	634288	634317	634346	634375	634403	634432	41	3. 17
71	634519	634548	634577	634606	634635	634664	634693	634722	634751	634780	40	4. 23
72	634867	634896	634925	634954	634983	635011	635040	635069	635098	635127	39	1 = 6
73	635214	635243	635272	635301	635330	635359	635388	635416	635445	635474	38	2. 12
74	635561	635590	635619	635648	635677	635706	635735	635763	635792	635821	37	3. 17
75	635908	635937	635966	635995	636024	636053	636081	636110	636139	636168	36	4. 23
76	636255	636283	636312	636341	636370	636399	636428	636457	636486	636514	35	1 = 6
77	636601	636630	636659	636688	636717	636745	636774	636803	636832	636861	34	2. 12
78	636947	636976	637005	637034	637063	637092	637120	637149	637178	637207	33	3. 17
79	637294	637323	637351	637380	637409	637438	637467	637495	637524	637553	32	4. 23
80	637639	637668	637697	637726	637755	637784	637812	637841	637870	637899	31	1 = 6
81	637985	638014	638043	638072	638100	638129	638158	638187	638216	638244	30	2. 12
82	638331	638360	638388	638417	638446	638475	638503	638532	638561	638590	29	3. 17
83	638676	638705	638734	638762	638791	638820	638849	638877	638906	638935	28	4. 23
84	639021	639050	639079	639108	639136	639165	639194	639223	639251	639280	27	1 = 6
85	639366	639395	639424	639452	639481	639510	639539	639567	639596	639625	26	2. 11
86	639711	639740	639769	639797	639826	639855	639883	639912	639941	639970	25	3. 17
87	640056	640084	640113	640142	640171	640200	640228	640257	640285	640314	24	4. 23
88	640400	640429	640457	640486	640515	640544	640572	640601	640630	640658	23	1 = 6
89	640744	640773	640802	640830	640859	640888	640916	640945	640974	641002	22	2. 11
90	641088	641117	641146	641174	641203	641232	641260	641289	641318	641346	21	3. 17
91	641432	641461	641490	641518	641547	641576	641604	641633	641661	641690	20	4. 23
92	641776	641805	641833	641862	641891	641919	641948	641976	642005	642034	19	1 = 6
93	642119	642148	642177	642205	642234	642263	642291	642320	642348	642377	18	2. 11
94	642463	642491	642520	642549	642577	642606	642634	642663	642692	642720	17	3. 17
95	642806	642835	642863	642892	642920	642949	642977	643006	643035	643063	16	4. 23
96	643149	643177	643206	643235	643263	643292	643320	643349	643377	643406	15	1 = 6
97	643492	643520	643549	643577	643606	643634	643663	643692	643720	643749	14	2. 11
98	643834	643863	643891	643920	643948	643977	644005	644034	644063	644091	13	3. 17
99	644177	644205	644234	644262	644291	644319	644348	644376	644405	644433	12	4. 23
100	644519	644547	644576	644604	644633	644661	644690	644718	644747	644775	11	1 = 6
101	644861	644889	644918	644946	644975	645003	645032	645060	645089	645117	10	2. 11
102	645203	645231	645260	645288	645317	645345	645374	645402	645431	645459	9	3. 17
103	645544	645573	645601	645630	645658	645687	645715	645744	645772	645801	8	4. 23
104	645886	645914	645943	645971	646000	646028	646057	646085	646114	646142	7	1 = 6
105	646227	646256	646284	646313	646341	646369	646398	646426	646455	646483	6	2. 11
106	646568	646597	646625	646654	646682	646711	646739	646767	646796	646824	5	3. 17
107	646909	646938	646966	646995	647023	647051	647080	647108	647137	647165	4	4. 23
108	647250	647279	647307	647335	647364	647392	647421	647449	647477	647506	3	1 = 6
109	647591	647619	647648	647676	647704	647733	647761	647789	647818	647846	2	2. 11
110	647931	647960	647988	648016	648045	648073	648101	648130	648158	648186	1	3. 17
111	648271	648300	648328	648356	648385	648413	648442	648470	648498	648527	0	4. 23
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-tangent of 66 degrees, or Tangent of 156 degrees.											Minutes	Proport. parts.

LOGARITHMIC TANGENTS.

Tangent of 24 degrees, or Co-tangent of 114 degrees.													
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes
0	9.648583	648612	648640	648668	648697	648725	648753	648781	648810	648838	648866	648895	59
1	9.648923	648951	648980	649008	649036	649065	649093	649121	649150	649178	649206	649235	58
2	9.649263	649291	649319	649348	649376	649404	649433	649461	649489	649517	649546	649574	57
3	9.649602	649631	649659	649687	649716	649744	649772	649800	649829	649857	649885	649913	56
4	9.649942	649970	649998	650027	650055	650083	650111	650140	650168	650196	650224	650253	55
5	9.650281	650309	650337	650366	650394	650422	650450	650479	650507	650535	650563	650592	54
6	9.650620	650648	650676	650705	650733	650761	650789	650818	650846	650874	650902	650931	53
7	9.650959	650987	651015	651043	651072	651100	651128	651156	651185	651213	651241	651269	52
8	9.651297	651326	651354	651382	651410	651438	651467	651495	651523	651551	651580	651608	51
9	9.651636	651664	651692	651721	651749	651777	651805	651833	651861	651890	651918	651946	50
10	9.651974	652002	652030	652059	652087	652115	652143	652172	652200	652228	652256	652284	49
11	9.652312	652341	652369	652397	652425	652453	652481	652510	652538	652566	652594	652622	48
12	9.652650	652678	652707	652735	652763	652791	652819	652847	652876	652904	652932	652960	47
13	9.652988	653016	653044	653073	653101	653129	653157	653185	653213	653241	653269	653298	46
14	9.653326	653354	653382	653410	653438	653466	653494	653523	653551	653579	653607	653635	45
15	9.653663	653691	653719	653748	653776	653804	653832	653860	653888	653916	653944	653972	44
16	9.654000	654029	654057	654085	654113	654141	654169	654197	654225	654253	654281	654309	43
17	9.654338	654366	654394	654422	654450	654478	654506	654534	654562	654590	654618	654646	42
18	9.654674	654703	654731	654759	654787	654815	654843	654871	654899	654927	654955	654983	41
19	9.655011	655039	655067	655095	655123	655151	655180	655208	655236	655264	655292	655320	40
20	9.655348	655376	655404	655432	655460	655488	655516	655544	655572	655600	655628	655656	39
21	9.655684	655712	655740	655768	655796	655824	655852	655880	655908	655936	655964	655992	38
22	9.656020	656048	656076	656104	656132	656160	656188	656216	656244	656272	656300	656328	37
23	9.656356	656384	656412	656440	656468	656496	656524	656552	656580	656608	656636	656664	36
24	9.656692	656720	656748	656776	656804	656832	656860	656888	656916	656944	656972	657000	35
25	9.657028	657056	657084	657112	657140	657168	657196	657224	657252	657280	657308	657336	34
26	9.657364	657392	657420	657448	657476	657504	657531	657559	657587	657615	657643	657671	33
27	9.657699	657727	657755	657783	657811	657839	657867	657895	657922	657950	657978	658006	32
28	9.658034	658062	658090	658118	658146	658174	658202	658230	658258	658285	658313	658341	31
29	9.658369	658397	658425	658453	658481	658509	658537	658565	658592	658620	658648	658676	30
30	9.658704	658732	658760	658788	658816	658844	658871	658899	658927	658955	658983	659011	29
31	9.659039	659067	659095	659122	659150	659178	659206	659234	659262	659290	659318	659345	28
32	9.659373	659401	659429	659457	659485	659513	659541	659568	659596	659624	659652	659680	27
33	9.659708	659736	659763	659791	659819	659847	659875	659903	659930	659958	659986	660014	26
34	9.660042	660070	660098	660125	660153	660181	660209	660237	660265	660292	660320	660348	25
35	9.660376	660404	660432	660459	660487	660515	660543	660571	660599	660626	660654	660682	24
36	9.660710	660738	660766	660793	660821	660849	660877	660904	660932	660960	660988	661016	23
37	9.661043	661071	661099	661127	661155	661182	661210	661238	661266	661294	661321	661349	22
38	9.661377	661405	661433	661460	661488	661516	661544	661571	661599	661627	661655	661683	21
39	9.661710	661738	661766	661794	661821	661849	661877	661905	661932	661960	661988	662016	20
40	9.662043	662071	662099	662127	662155	662182	662210	662238	662266	662293	662321	662349	19
41	9.662377	662404	662432	662460	662487	662515	662543	662571	662598	662626	662654	662682	18
42	9.662709	662737	662765	662793	662820	662848	662876	662903	662931	662959	662987	663014	17
43	9.663042	663070	663097	663125	663153	663181	663208	663236	663264	663291	663319	663347	16
44	9.663375	663402	663430	663458	663485	663513	663541	663568	663596	663624	663652	663679	15
45	9.663707	663735	663762	663790	663818	663845	663873	663901	663928	663956	663984	664011	14
46	9.664039	664067	664094	664122	664150	664177	664205	664233	664260	664288	664316	664343	13
47	9.664371	664399	664426	664454	664482	664509	664537	664565	664592	664620	664648	664675	12
48	9.664703	664731	664758	664786	664814	664841	664869	664897	664924	664952	664979	665007	11
49	9.665035	665062	665090	665118	665145	665173	665200	665228	665256	665283	665311	665339	10
50	9.665366	665394	665421	665449	665477	665504	665532	665560	665587	665615	665642	665670	9
51	9.665698	665725	665753	665780	665808	665836	665863	665891	665918	665946	665974	666001	8
52	9.666029	666056	666084	666112	666139	666167	666194	666222	666250	666277	666305	666332	7
53	9.666360	666387	666415	666443	666470	666498	666525	666553	666580	666608	666636	666663	6
54	9.666691	666718	666746	666773	666801	666829	666856	666884	666911	666939	666966	666994	5
55	9.667021	667049	667077	667104	667132	667159	667187	667214	667242	667269	667297	667324	4
56	9.667352	667380	667407	667435	667462	667490	667517	667545	667572	667600	667627	667655	3
57	9.667682	667710	667737	667765	667792	667820	667848	667875	667903	667930	667958	667985	2
58	9.668013	668040	668068	668095	668123	668150	668178	668205	668233	668260	668288	668315	1
59	9.668343	668370	668398	668425	668453	668480	668508	668535	668563	668590	668618	668645	0
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes
Co-tangent of 65 degrees, or Tangent of 155 degrees.													
Minutes													Minutes

Co-tangent of 65 degrees, or Tangent of 155 degrees.

LOGARITHMIC TANGENTS.

Tangent of 25 degrees, or Co-tangent of 115 degrees.											Minutes	Proportional parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°		
58673	668700	668728	668755	668783	668810	668837	668865	668892	668920	668947	59	1" = 5
59002	669030	669057	669085	669112	669140	669167	669195	669222	669250	669277	58	2. 11
59332	669359	669387	669414	669442	669469	669497	669524	669552	669579	669606	57	3. 16
59661	669689	669716	669744	669771	669799	669826	669853	669881	669908	669936	56	4. 22
59991	670018	670045	670073	670100	670128	670155	670183	670210	670237	670265	55	1" = 5
60320	670347	670375	670402	670429	670457	670484	670512	670539	670566	670594	54	2. 11
60649	670676	670703	670731	670758	670786	670813	670840	670868	670895	670923	53	3. 16
60977	671005	671032	671060	671087	671114	671142	671169	671197	671224	671251	52	4. 22
61306	671333	671361	671388	671416	671443	671470	671498	671525	671552	671580	51	1" = 5
61635	671662	671689	671717	671744	671771	671799	671826	671853	671881	671908	50	2. 11
61963	671990	672018	672045	672072	672100	672127	672154	672182	672209	672236	49	3. 16
62291	672318	672346	672373	672400	672428	672455	672482	672510	672537	672564	48	4. 22
62619	672646	672674	672701	672728	672756	672783	672810	672838	672865	672892	47	1" = 5
62947	672974	673001	673029	673056	673083	673111	673138	673165	673193	673220	46	2. 11
63275	673302	673329	673356	673384	673411	673438	673466	673493	673520	673547	45	3. 16
63602	673629	673657	673684	673711	673738	673766	673793	673820	673848	673875	44	4. 22
63929	673957	673984	674011	674038	674066	674093	674120	674148	674175	674202	43	1" = 5
64257	674284	674311	674338	674366	674393	674420	674447	674475	674502	674529	42	2. 11
64584	674611	674638	674665	674693	674720	674747	674774	674802	674829	674856	41	3. 16
64911	674938	674965	674992	675019	675047	675074	675101	675128	675156	675183	40	4. 22
65237	675265	675292	675319	675346	675373	675401	675428	675455	675482	675509	39	1" = 5
65564	675591	675618	675645	675673	675700	675727	675754	675782	675809	675836	38	2. 11
65890	675917	675945	675972	675999	676026	676053	676081	676108	676135	676162	37	3. 16
66217	676244	676271	676298	676325	676352	676380	676407	676434	676461	676488	36	4. 22
66543	676570	676597	676624	676651	676679	676706	676733	676760	676787	676814	35	1" = 5
66869	676896	676923	676950	676977	677004	677032	677059	677086	677113	677140	34	2. 11
67194	677222	677249	677276	677303	677330	677357	677384	677412	677439	677466	33	3. 16
67520	677547	677574	677602	677629	677656	677683	677710	677737	677764	677791	32	4. 22
67846	677873	677900	677927	677954	677981	678008	678035	678063	678090	678117	31	1" = 5
68171	678198	678225	678252	678279	678306	678334	678361	678388	678415	678442	30	2. 11
68496	678523	678550	678577	678605	678632	678659	678686	678713	678740	678767	29	3. 16
68821	678848	678875	678902	678930	678957	678984	679011	679038	679065	679092	28	4. 22
69146	679173	679200	679227	679254	679281	679308	679336	679363	679390	679417	27	1" = 5
69471	679498	679525	679552	679579	679606	679633	679660	679687	679714	679741	26	2. 11
69796	679822	679849	679877	679904	679931	679958	679985	680012	680039	680066	25	3. 16
70121	680147	680174	680201	680228	680255	680282	680309	680336	680363	680390	24	4. 22
70446	680471	680498	680525	680552	680579	680606	680633	680660	680687	680714	23	1" = 5
70771	680795	680822	680849	680876	680903	680930	680957	680984	681011	681038	22	2. 11
71096	681119	681146	681173	681200	681227	681254	681281	681308	681335	681362	21	3. 16
71421	681443	681470	681497	681524	681551	681578	681605	681632	681659	681686	20	4. 22
71746	681767	681794	681821	681848	681875	681901	681928	681955	681982	682009	19	1" = 5
72071	682090	682117	682144	682171	682198	682225	682252	682279	682306	682333	18	2. 11
72396	682411	682438	682465	682492	682519	682546	682573	682600	682627	682654	17	3. 16
72721	682737	682764	682791	682818	682844	682871	682898	682925	682952	682979	16	4. 22
73046	683060	683087	683114	683141	683167	683194	683221	683248	683275	683302	15	1" = 5
73371	683383	683410	683437	683463	683490	683517	683544	683571	683598	683625	14	2. 11
73696	683705	683732	683759	683786	683813	683840	683867	683894	683921	683947	13	3. 16
74021	684028	684055	684082	684109	684136	684162	684189	684216	684243	684270	12	4. 22
74346	684351	684377	684404	684431	684458	684485	684512	684539	684565	684592	11	1" = 5
74671	684673	684700	684727	684753	684780	684807	684834	684861	684888	684914	10	2. 11
74996	684995	685022	685049	685076	685102	685129	685156	685183	685210	685237	9	3. 16
75321	685317	685344	685371	685398	685424	685451	685478	685505	685532	685558	8	4. 22
75646	685639	685666	685693	685719	685746	685773	685800	685827	685853	685880	7	1" = 5
75971	685961	685987	686014	686041	686068	686095	686121	686148	686175	686202	6	2. 11
76296	686282	686309	686336	686363	686389	686416	686443	686470	686496	686523	5	3. 16
76621	686604	686630	686657	686684	686711	686737	686764	686791	686818	686845	4	4. 22
76946	686925	686952	686978	687005	687032	687059	687085	687112	687139	687166	3	1" = 5
77271	687246	687273	687300	687326	687353	687380	687407	687433	687460	687487	2	2. 11
77596	687567	687594	687620	687647	687674	687701	687727	687754	687781	687808	1	3. 16
77921	687888	687915	687941	687968	687995	688021	688048	688075	688102	688128	0	4. 22
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proportional parts.
Co-tangent of 64 degrees, or Tangent of 154 degrees.											Minutes	Proportional parts.

LOGARITHMIC TANGENTS.

Tangent of 26 degrees, or Co-tangent of 116 degrees.															
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proport. parts	
0	9.688182	688209	688235	688262	688289	688315	688342	688369	688396	688422	688449	688476	59	1 =	
1	9.688502	688529	688556	688583	688609	688636	688663	688689	688716	688743	688769	688796	58	2. 11	
2	9.688823	688849	688876	688903	688930	688956	688983	689010	689036	689063	689090	689116	57	3. 11	
3	9.689143	689170	689196	689223	689250	689276	689303	689330	689357	689383	689410	689437	56	4. 21	
4	9.689463	689490	689517	689543	689570	689597	689623	689650	689677	689703	689730	689757	55	1 =	
5	9.689783	689810	689836	689863	689890	689916	689943	689970	689996	690023	690050	690076	54	2. 11	
6	9.690103	690130	690156	690183	690210	690236	690263	690290	690316	690343	690369	690396	53	3. 11	
7	9.690423	690449	690476	690503	690529	690556	690582	690609	690636	690662	690689	690716	52	4. 21	
8	9.690742	690769	690795	690822	690849	690875	690902	690929	690955	690982	691008	691035	51	1 =	
9	9.691062	691088	691115	691141	691168	691195	691221	691248	691275	691301	691328	691354	50	2. 11	
10	9.691381	691408	691434	691461	691487	691514	691540	691567	691594	691620	691647	691673	49	3. 11	
11	9.691700	691727	691753	691780	691806	691833	691860	691886	691913	691939	691966	691992	48	4. 21	
12	9.692019	692046	692072	692099	692125	692152	692178	692205	692232	692258	692285	692311	47	1 =	
13	9.692338	692364	692391	692418	692444	692471	692497	692524	692550	692577	692603	692630	46	2. 11	
14	9.692657	692683	692710	692736	692763	692789	692816	692842	692869	692895	692922	692949	45	3. 11	
15	9.692975	693002	693028	693055	693081	693108	693134	693161	693187	693214	693240	693267	44	4. 21	
16	9.693293	693320	693347	693373	693400	693426	693453	693479	693506	693532	693559	693585	43	1 =	
17	9.693612	693638	693665	693691	693718	693744	693771	693797	693824	693850	693877	693903	42	2. 11	
18	9.693930	693956	693983	694009	694036	694062	694089	694115	694142	694168	694195	694221	41	3. 11	
19	9.694248	694274	694301	694327	694354	694380	694407	694433	694460	694486	694513	694539	40	4. 21	
20	9.694566	694592	694619	694645	694672	694698	694725	694751	694777	694804	694830	694857	39	1 =	
21	9.694883	694910	694936	694963	694989	695016	695042	695069	695095	695122	695148	695174	38	2. 11	
22	9.695201	695227	695254	695280	695307	695333	695360	695386	695413	695439	695465	695492	37	3. 11	
23	9.695518	695545	695571	695598	695624	695651	695677	695703	695730	695756	695783	695809	36	4. 21	
24	9.695836	695862	695888	695915	695941	695968	695994	696021	696047	696073	696100	696126	35	1 =	
25	9.696153	696179	696206	696232	696258	696285	696311	696338	696364	696390	696417	696443	34	2. 11	
26	9.696470	696496	696523	696549	696575	696602	696628	696655	696681	696707	696734	696760	33	3. 11	
27	9.696787	696813	696839	696866	696892	696919	696945	696971	696998	697024	697051	697077	32	4. 21	
28	9.697103	697130	697156	697182	697209	697235	697262	697288	697314	697341	697367	697393	31	1 =	
29	9.697420	697446	697473	697499	697525	697552	697578	697604	697631	697657	697684	697710	30	2. 11	
30	9.697737	697763	697789	697815	697842	697868	697894	697921	697947	697974	698000	698026	29	3. 11	
31	9.698053	698079	698105	698132	698158	698184	698211	698237	698263	698290	698316	698342	28	4. 21	
32	9.698369	698395	698421	698448	698474	698500	698527	698553	698579	698606	698632	698658	27	1 =	
33	9.698685	698711	698737	698764	698790	698816	698843	698869	698895	698922	698948	698974	26	2. 11	
34	9.699001	699027	699053	699080	699106	699132	699159	699185	699211	699237	699264	699290	25	3. 11	
35	9.699316	699343	699369	699395	699422	699448	699474	699501	699527	699553	699579	699606	24	4. 21	
36	9.699632	699658	699685	699711	699737	699763	699790	699816	699842	699869	699895	699921	23	1 =	
37	9.699947	699974	700000	700026	700053	700079	700105	700131	700158	700184	700210	700237	22	2. 11	
38	9.700263	700289	700315	700342	700368	700394	700420	700447	700473	700499	700525	700552	21	3. 11	
39	9.700578	700604	700631	700657	700683	700709	700736	700762	700788	700814	700841	700867	20	4. 21	
40	9.700893	700919	700946	700972	700998	701024	701051	701077	701103	701130	701156	701182	19	1 =	
41	9.701208	701234	701260	701287	701313	701339	701365	701392	701418	701444	701470	701497	18	2. 11	
42	9.701523	701549	701575	701601	701628	701654	701680	701706	701733	701759	701785	701811	17	3. 11	
43	9.701837	701864	701890	701916	701942	701969	701995	702021	702047	702073	702100	702126	16	4. 21	
44	9.702152	702178	702204	702231	702257	702283	702309	702335	702362	702388	702414	702440	15	1 =	
45	9.702466	702493	702519	702545	702571	702597	702623	702650	702676	702702	702728	702754	14	2. 11	
46	9.702781	702807	702833	702859	702885	702911	702938	702964	702990	703016	703042	703069	13	3. 11	
47	9.703095	703121	703147	703173	703199	703226	703252	703278	703304	703330	703356	703383	12	4. 21	
48	9.703409	703435	703461	703487	703513	703539	703566	703592	703618	703644	703670	703696	11	1 =	
49	9.703723	703749	703775	703801	703827	703853	703879	703906	703932	703958	703984	704010	10	2. 11	
50	9.704036	704062	704088	704115	704141	704167	704193	704219	704245	704271	704298	704324	9	3. 11	
51	9.704350	704376	704402	704428	704454	704480	704507	704533	704559	704585	704611	704637	8	4. 21	
52	9.704663	704689	704715	704742	704768	704794	704820	704846	704872	704898	704924	704950	7	1 =	
53	9.704977	705003	705029	705055	705081	705107	705133	705159	705185	705211	705238	705264	6	2. 11	
54	9.705290	705316	705342	705368	705394	705420	705446	705472	705498	705524	705551	705577	5	3. 11	
55	9.705603	705629	705655	705681	705707	705733	705759	705785	705811	705837	705863	705890	4	4. 21	
56	9.705916	705942	705968	705994	706020	706046	706072	706098	706124	706150	706176	706202	3	1 =	
57	9.706228	706254	706281	706307	706333	706359	706385	706411	706437	706463	706489	706515	2	2. 11	
58	9.706541	706567	706593	706619	706645	706671	706697	706723	706749	706775	706801	706828	1	3. 11	
59	9.706854	706880	706906	706932	706958	706984	707010	707036	707062	707088	707114	707140	0	4. 21	
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'															
Co-tangent of 63 degrees, or Tangent of 153 degrees.															
Minutes														Minutes	Proport. parts

LOGARITHMIC TANGENTS.

Tangent of 27 degrees, or Co-tangent of 117 degrees.													Minutes	Proport. parts.
°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
7166	707192	707218	707244	707270	707296	707322	707348	707374	707400	707426	707452	59	1" = 5	
7478	707504	707530	707556	707582	707608	707634	707660	707686	707712	707738	707764	58	2. 10	
7790	707816	707842	707868	707894	707920	707946	707972	707998	708024	708050	708076	57	3. 16	
8102	708128	708154	708180	708206	708232	708258	708284	708310	708336	708362	708388	56	4. 21	
8414	708440	708466	708492	708518	708544	708570	708596	708622	708648	708674	708700	55	1 = 5	
8726	708752	708778	708804	708830	708856	708882	708908	708934	708960	708985	709011	54	2. 10	
9037	709063	709089	709115	709141	709167	709193	709219	709245	709271	709297	709323	53	3. 16	
9349	709375	709401	709427	709453	709479	709505	709530	709556	709582	709608	709634	52	4. 21	
9660	709686	709712	709738	709764	709790	709816	709842	709868	709894	709920	709945	51	1 = 5	
9971	709997	710023	710049	710075	710101	710127	710153	710179	710205	710231	710257	50	2. 10	
0282	710308	710334	710360	710386	710412	710438	710464	710490	710516	710542	710567	49	3. 16	
0593	710619	710645	710671	710697	710723	710749	710775	710801	710826	710852	710878	48	4. 21	
0904	710930	710956	710982	711008	711034	711060	711085	711111	711137	711163	711189	47	1 = 5	
1215	711241	711267	711293	711318	711344	711370	711396	711422	711448	711474	711500	46	2. 10	
1525	711551	711577	711603	711629	711655	711681	711706	711732	711758	711784	711810	45	3. 16	
1836	711862	711888	711913	711939	711965	711991	712017	712043	712069	712094	712120	44	4. 21	
2146	712172	712198	712224	712250	712275	712301	712327	712353	712379	712405	712430	43	1 = 5	
2456	712482	712508	712534	712560	712585	712611	712637	712663	712689	712715	712740	42	2. 10	
2766	712792	712818	712844	712870	712895	712921	712947	712973	712999	713025	713050	41	3. 16	
3076	713102	713128	713154	713179	713205	713231	713257	713283	713309	713334	713360	40	4. 21	
3386	713412	713438	713463	713489	713515	713541	713567	713592	713618	713644	713670	39	1 = 5	
3696	713721	713747	713773	713799	713825	713850	713876	713902	713928	713954	713979	38	2. 10	
4005	714031	714057	714082	714108	714134	714160	714186	714211	714237	714263	714289	37	3. 15	
4315	714340	714366	714392	714418	714443	714469	714495	714521	714546	714572	714598	36	4. 21	
4624	714650	714675	714701	714727	714753	714778	714804	714830	714856	714881	714907	35	1 = 5	
4933	714959	714984	715010	715036	715062	715087	715113	715139	715165	715190	715216	34	2. 10	
5242	715268	715293	715319	715345	715371	715396	715422	715448	715474	715499	715525	33	3. 15	
5551	715577	715602	715628	715654	715679	715705	715731	715757	715782	715808	715834	32	4. 21	
5860	715885	715911	715937	715962	715988	716014	716040	716065	716091	716117	716143	31	1 = 5	
6169	716194	716220	716245	716271	716297	716322	716348	716374	716400	716425	716451	30	2. 10	
6477	716502	716528	716554	716580	716605	716631	716657	716682	716708	716734	716759	29	3. 15	
6785	716811	716836	716862	716888	716914	716939	716965	716991	717016	717042	717068	28	4. 21	
7093	717119	717145	717170	717196	717222	717247	717273	717299	717324	717350	717376	27	1 = 5	
7401	717427	717453	717479	717504	717530	717556	717581	717607	717633	717658	717684	26	2. 10	
7709	717735	717761	717786	717812	717838	717863	717889	717915	717940	717966	717992	25	3. 15	
8017	718043	718069	718094	718120	718146	718171	718197	718223	718248	718274	718299	24	4. 21	
8325	718351	718376	718402	718428	718453	718479	718505	718530	718556	718582	718607	23	1 = 5	
8633	718658	718684	718710	718735	718761	718787	718812	718838	718863	718889	718915	22	2. 10	
8940	718966	718992	719017	719043	719068	719094	719120	719145	719171	719196	719222	21	3. 15	
9248	719273	719299	719324	719350	719376	719401	719427	719453	719478	719504	719529	20	4. 21	
9555	719581	719606	719632	719657	719683	719708	719734	719760	719785	719811	719836	19	1 = 5	
9862	719888	719913	719939	719964	719990	720016	720041	720067	720092	720118	720143	18	2. 10	
10169	720195	720220	720246	720271	720297	720323	720348	720374	720399	720425	720450	17	3. 15	
10476	720502	720527	720553	720578	720604	720629	720655	720680	720706	720732	720757	16	4. 20	
10783	720808	720834	720859	720885	720911	720936	720962	720987	721013	721038	721064	15	1 = 5	
11090	721115	721140	721166	721192	721217	721243	721268	721294	721319	721345	721370	14	2. 10	
11396	721421	721447	721472	721498	721524	721549	721575	721600	721626	721651	721677	13	3. 15	
11702	721728	721753	721779	721804	721830	721855	721881	721906	721932	721958	721983	12	4. 20	
12009	722034	722060	722085	722111	722136	722162	722187	722213	722238	722264	722289	11	1 = 5	
12315	722340	722366	722391	722417	722442	722468	722493	722519	722544	722570	722595	10	2. 10	
12621	722646	722672	722697	722723	722748	722774	722799	722825	722850	722876	722901	9	3. 15	
12927	722952	722978	723003	723029	723054	723080	723105	723131	723156	723181	723207	8	4. 20	
13232	723258	723283	723309	723334	723360	723385	723411	723436	723462	723487	723513	7	1 = 5	
13538	723564	723589	723615	723640	723665	723691	723716	723742	723767	723793	723818	6	2. 10	
13844	723869	723895	723920	723945	723971	723996	724022	724047	724073	724098	724124	5	3. 15	
14149	724175	724200	724225	724251	724276	724302	724327	724353	724378	724404	724429	4	4. 20	
14454	724480	724505	724531	724556	724582	724607	724632	724658	724683	724709	724734	3	1 = 5	
14760	724785	724810	724836	724861	724887	724912	724938	724963	724988	725014	725039	2	2. 10	
15065	725090	725115	725141	725166	725192	725217	725243	725268	725293	725319	725344	1	3. 15	
15370	725395	725420	725446	725471	725497	725522	725547	725573	725598	725624	725649	0	4. 20	
°	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.	
Co-tangent of 62 degrees, or Tangent of 152 degrees.														

LOGARITHMIC TANGENTS.

Minutes	Tangent of 28 degrees, or Co-tangent of 118 degrees.											Minutes	Propor. parts.
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	
0	9.725674	725700	725725	725751	725776	725801	725827	725852	725878	725903	725928	725954	59
1	9.725979	726005	726030	726055	726081	726106	726131	726157	726182	726208	726233	726258	58
2	9.726284	726309	726334	726360	726385	726411	726436	726461	726487	726512	726537	726563	57
3	9.726588	726614	726639	726664	726690	726715	726740	726766	726791	726816	726842	726867	56
4	9.726893	726918	726943	726969	726994	727019	727045	727070	727095	727121	727146	727171	55
5	9.727197	727222	727247	727273	727298	727323	727349	727374	727400	727425	727450	727476	54
6	9.727501	727526	727552	727577	727602	727628	727653	727678	727704	727729	727754	727780	53
7	9.727805	727830	727856	727881	727906	727931	727957	727982	728007	728033	728058	728083	52
8	9.728109	728134	728159	728185	728210	728235	728261	728286	728311	728337	728362	728387	51
9	9.728412	728438	728463	728488	728514	728539	728564	728590	728615	728640	728666	728691	50
10	9.728716	728741	728767	728792	728817	728843	728868	728893	728918	728944	728969	728994	49
11	9.729020	729045	729070	729096	729121	729146	729171	729197	729222	729247	729272	729298	48
12	9.729333	729358	729384	729409	729434	729459	729485	729510	729535	729561	729586	729611	47
13	9.729637	729662	729687	729713	729738	729763	729788	729813	729839	729864	729889	729914	46
14	9.729940	729965	729990	730016	730041	730066	730091	730117	730142	730167	730192	730217	45
15	9.730243	730268	730293	730319	730344	730369	730394	730420	730445	730470	730495	730520	44
16	9.730545	730570	730596	730621	730646	730672	730697	730722	730748	730773	730798	730823	43
17	9.730848	730873	730898	730924	730949	730974	731000	731025	731050	731075	731101	731126	42
18	9.731141	731166	731191	731217	731242	731267	731292	731318	731343	731368	731393	731418	41
19	9.731444	731469	731494	731520	731545	731570	731595	731620	731646	731671	731696	731721	40
20	9.731746	731771	731796	731822	731847	731872	731897	731922	731948	731973	731998	732023	39
21	9.732048	732073	732098	732124	732149	732174	732200	732225	732250	732275	732300	732325	38
22	9.732351	732376	732401	732426	732451	732477	732502	732527	732552	732577	732602	732628	37
23	9.732653	732678	732703	732728	732753	732779	732804	732829	732854	732879	732904	732929	36
24	9.732955	732980	733005	733030	733055	733081	733106	733131	733156	733181	733206	733231	35
25	9.733257	733282	733307	733332	733357	733382	733408	733433	733458	733483	733508	733533	34
26	9.733558	733583	733609	733634	733659	733684	733709	733734	733760	733785	733810	733835	33
27	9.733860	733885	733910	733936	733961	733986	734011	734036	734061	734086	734111	734137	32
28	9.734162	734187	734212	734237	734262	734287	734312	734338	734363	734388	734413	734438	31
29	9.734463	734488	734513	734538	734564	734589	734614	734639	734664	734689	734714	734739	30
30	9.734764	734789	734815	734840	734865	734890	734915	734940	734965	734990	735015	735041	29
31	9.735066	735091	735116	735141	735166	735191	735216	735241	735266	735291	735317	735342	28
32	9.735367	735392	735417	735442	735467	735492	735517	735542	735567	735592	735618	735643	27
33	9.735668	735693	735718	735743	735768	735793	735818	735843	735868	735893	735919	735944	26
34	9.735969	735994	736019	736044	736069	736094	736119	736144	736169	736194	736219	736244	25
35	9.736269	736294	736319	736345	736370	736395	736420	736445	736470	736495	736520	736545	24
36	9.736570	736595	736620	736645	736670	736695	736720	736745	736770	736795	736820	736845	23
37	9.736871	736896	736921	736946	736971	736996	737021	737046	737071	737096	737121	737146	22
38	9.737171	737196	737221	737246	737271	737296	737321	737346	737371	737396	737421	737446	21
39	9.737471	737496	737521	737546	737571	737596	737621	737646	737671	737696	737721	737746	20
40	9.737771	737796	737821	737846	737871	737896	737921	737946	737971	737996	738022	738047	19
41	9.738072	738097	738122	738147	738172	738197	738222	738247	738272	738297	738322	738346	18
42	9.738371	738396	738421	738446	738471	738496	738521	738546	738571	738596	738621	738646	17
43	9.738671	738696	738721	738746	738771	738796	738821	738846	738871	738896	738921	738946	16
44	9.738971	738996	739021	739046	739071	739096	739121	739146	739171	739196	739221	739246	15
45	9.739271	739296	739321	739346	739371	739396	739421	739445	739470	739495	739520	739545	14
46	9.739570	739595	739620	739645	739670	739695	739720	739745	739770	739795	739820	739845	13
47	9.739870	739895	739920	739944	739969	739994	740019	740044	740069	740094	740119	740144	12
48	9.740169	740194	740219	740244	740269	740294	740319	740344	740368	740393	740418	740443	11
49	9.740468	740493	740518	740543	740568	740593	740618	740643	740668	740692	740717	740742	10
50	9.740767	740792	740817	740842	740867	740892	740917	740942	740967	740991	741016	741041	9
51	9.741066	741091	741116	741141	741166	741191	741216	741241	741265	741290	741315	741340	8
52	9.741365	741390	741415	741440	741465	741490	741514	741539	741564	741589	741614	741639	7
53	9.741664	741689	741714	741738	741763	741788	741813	741838	741863	741888	741913	741938	6
54	9.741962	741987	742012	742037	742062	742087	742112	742137	742161	742186	742211	742236	5
55	9.742261	742286	742311	742336	742360	742385	742410	742435	742460	742485	742510	742535	4
56	9.742559	742584	742609	742634	742659	742684	742709	742733	742758	742783	742808	742833	3
57	9.742858	742883	742907	742932	742957	742982	743007	743032	743057	743081	743106	743131	2
58	9.743156	743181	743206	743230	743255	743280	743305	743330	743355	743380	743404	743429	1
59	9.743454	743479	743504	743529	743553	743578	743603	743628	743653	743678	743702	743727	0
Minutes	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes
Co-tangent of 61 degrees, or Tangent of 151 degrees.													Propor. parts.

LOGARITHMIC TANGENTS.

Tangent of 29 degrees, or Co-tangent of 119 degrees.												Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
52	743777	743802	743827	743851	743876	743901	743926	743951	743975	744000	744025	59	1" = 5
50	744075	744100	744124	744149	744174	744199	744224	744248	744273	744298	744323	58	2. 10
48	744372	744397	744422	744447	744472	744497	744521	744546	744571	744596	744621	57	3. 15
46	744670	744695	744720	744745	744769	744794	744819	744844	744869	744893	744918	56	4. 20
44	744968	744992	745017	745042	745067	745092	745116	745141	745166	745191	745216	55	1" = 5
42	745265	745290	745315	745339	745364	745389	745414	745439	745463	745488	745513	54	2. 10
40	745562	745587	745612	745637	745662	745686	745711	745736	745761	745785	745810	53	3. 15
38	745860	745884	745909	745934	745959	745983	746008	746033	746058	746083	746107	52	4. 20
36	746157	746182	746206	746231	746256	746281	746305	746330	746355	746380	746404	51	1" = 5
34	746454	746479	746503	746528	746553	746578	746602	746627	746652	746676	746701	50	2. 10
32	746751	746775	746800	746825	746850	746874	746899	746924	746949	746973	746998	49	3. 15
30	747048	747072	747097	747122	747146	747171	747196	747221	747245	747270	747295	48	4. 20
28	747344	747369	747394	747418	747443	747468	747493	747517	747542	747567	747591	47	1" = 5
26	747641	747665	747690	747715	747740	747764	747789	747814	747838	747863	747888	46	2. 10
24	747937	747962	747987	748011	748036	748061	748085	748110	748135	748160	748184	45	3. 15
22	748234	748258	748283	748308	748332	748357	748382	748406	748431	748456	748481	44	4. 20
20	748530	748555	748579	748604	748629	748653	748678	748703	748727	748752	748777	43	1" = 5
18	748826	748851	748875	748900	748925	748949	748974	748999	749023	749048	749073	42	2. 10
16	749122	749147	749171	749196	749221	749245	749270	749295	749319	749344	749369	41	3. 15
14	749418	749443	749467	749492	749517	749541	749566	749591	749615	749640	749665	40	4. 20
12	749714	749739	749763	749788	749813	749837	749862	749886	749911	749936	749960	39	1" = 5
10	750010	750034	750059	750084	750108	750133	750157	750182	750207	750231	750256	38	2. 10
8	750305	750330	750355	750379	750404	750428	750453	750478	750502	750527	750552	37	3. 15
6	750601	750625	750650	750675	750699	750724	750749	750773	750798	750822	750847	36	4. 20
4	750896	750921	750945	750970	750995	751019	751044	751069	751093	751118	751142	35	1" = 5
2	751192	751216	751241	751265	751290	751315	751339	751364	751388	751413	751438	34	2. 10
0	751487	751511	751536	751561	751585	751610	751634	751659	751684	751708	751733	33	3. 15
58	751782	751807	751831	751856	751880	751905	751929	751954	751979	752003	752028	32	4. 20
56	752077	752102	752126	752151	752175	752200	752224	752249	752274	752298	752323	31	1" = 5
54	752372	752396	752421	752446	752470	752495	752519	752544	752568	752593	752618	30	2. 10
52	752667	752691	752716	752740	752765	752789	752814	752839	752863	752888	752912	29	3. 15
50	752961	752986	753010	753035	753060	753084	753109	753133	753158	753182	753207	28	4. 20
48	753256	753281	753305	753330	753354	753379	753403	753428	753452	753477	753501	27	1" = 5
46	753550	753575	753600	753624	753649	753673	753698	753722	753747	753771	753796	26	2. 10
44	753845	753869	753894	753918	753943	753967	753992	754017	754041	754066	754090	25	3. 15
42	754139	754164	754188	754213	754237	754262	754286	754311	754335	754360	754384	24	4. 20
40	754433	754458	754482	754507	754531	754556	754580	754605	754629	754654	754678	23	1" = 5
38	754727	754752	754776	754801	754825	754850	754874	754899	754923	754948	754972	22	2. 10
36	755021	755046	755070	755095	755119	755144	755168	755193	755217	755242	755266	21	3. 15
34	755315	755340	755364	755389	755413	755438	755462	755487	755511	755536	755560	20	4. 20
32	755609	755634	755658	755683	755707	755731	755756	755780	755805	755829	755854	19	1" = 5
30	755903	755927	755952	755976	756001	756025	756050	756074	756099	756123	756147	18	2. 10
28	756196	756221	756245	756270	756294	756319	756343	756368	756392	756416	756441	17	3. 15
26	756490	756514	756539	756563	756588	756612	756637	756661	756685	756710	756734	16	4. 20
24	756783	756808	756832	756857	756881	756905	756930	756954	756979	757003	757028	15	1" = 5
22	757077	757101	757125	757150	757174	757199	757223	757248	757272	757296	757321	14	2. 10
20	757370	757394	757419	757443	757467	757492	757516	757541	757565	757589	757614	13	3. 15
18	757663	757687	757712	757736	757760	757785	757809	757834	757858	757883	757907	12	4. 20
16	757956	757980	758005	758029	758053	758078	758102	758127	758151	758175	758200	11	1" = 5
14	758249	758273	758297	758322	758346	758371	758395	758419	758444	758468	758493	10	2. 10
12	758541	758566	758590	758615	758639	758663	758688	758712	758737	758761	758786	9	3. 15
10	758834	758858	758883	758907	758932	758956	758980	759005	759029	759054	759078	8	4. 19
8	759127	759151	759175	759200	759224	759249	759273	759297	759322	759346	759370	7	1" = 5
6	759419	759444	759468	759492	759517	759541	759565	759590	759614	759638	759663	6	2. 10
4	759712	759736	759760	759785	759809	759833	759858	759882	759906	759931	759955	5	3. 15
2	760004	760028	760053	760077	760101	760126	760150	760174	760199	760223	760247	4	4. 19
0	760296	760320	760345	760369	760393	760418	760442	760466	760491	760515	760539	3	1" = 5
58	760588	760612	760637	760661	760685	760710	760734	760758	760783	760807	760831	2	2. 10
56	760880	760904	760929	760953	760977	761002	761026	761050	761075	761099	761123	1	3. 15
54	761172	761196	761221	761245	761269	761294	761318	761342	761366	761391	761415	0	4. 19
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"		Minutes	Proport. parts.

Co-tangent of 60 degrees, or Tangent of 150 degrees.

LOGARITHMIC TANGENTS.

Tangent of 30 degrees, or Co-tangent of 120 degrees.														Minutes	Prop.
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
0	9.761439	761464	761488	761512	761537	761561	761585	761610	761634	761658	761683	761707	59	1	
1	9.761731	761755	761780	761804	761828	761853	761877	761901	761926	761950	761974	761998	58	2	
2	9.762023	762047	762071	762096	762120	762144	762168	762193	762217	762241	762266	762290	57	3	
3	9.762314	762339	762363	762387	762411	762436	762460	762484	762509	762533	762557	762581	56	4	
4	9.762606	762630	762654	762678	762703	762727	762751	762776	762800	762824	762848	762873	55	1	
5	9.762897	762921	762945	762970	762994	763018	763043	763067	763091	763115	763140	763164	54	2	
6	9.763188	763212	763237	763261	763285	763309	763334	763358	763382	763407	763431	763455	53	3	
7	9.763479	763504	763528	763552	763576	763601	763625	763649	763673	763698	763722	763746	52	4	
8	9.763770	763795	763819	763843	763867	763892	763916	763940	763964	763988	764013	764037	51	1	
9	9.764061	764085	764110	764134	764158	764182	764207	764231	764255	764279	764304	764328	50	2	
10	9.764352	764376	764401	764425	764449	764473	764497	764522	764546	764570	764594	764619	49	3	
11	9.764643	764667	764691	764715	764740	764764	764788	764812	764837	764861	764885	764909	48	4	
12	9.764933	764958	764982	765006	765030	765054	765079	765103	765127	765151	765176	765200	47	1	
13	9.765224	765248	765272	765297	765321	765345	765369	765393	765418	765442	765466	765490	46	2	
14	9.765514	765539	765563	765587	765611	765635	765660	765684	765708	765732	765756	765781	45	3	
15	9.765805	765829	765853	765877	765901	765926	765950	765974	765998	766022	766047	766071	44	4	
16	9.766095	766119	766143	766168	766192	766216	766240	766264	766288	766313	766337	766361	43	1	
17	9.766385	766409	766433	766458	766482	766506	766530	766554	766579	766603	766627	766651	42	2	
18	9.766675	766699	766724	766748	766772	766796	766820	766844	766869	766893	766917	766941	41	3	
19	9.766965	766989	767013	767038	767062	767086	767110	767134	767158	767183	767207	767231	40	4	
20	9.767255	767279	767303	767327	767352	767376	767400	767424	767448	767472	767497	767521	39	1	
21	9.767545	767569	767593	767617	767641	767666	767690	767714	767738	767762	767786	767810	38	2	
22	9.767834	767859	767883	767907	767931	767955	767979	768003	768028	768052	768076	768100	37	3	
23	9.768124	768148	768172	768196	768221	768245	768269	768293	768317	768341	768365	768389	36	4	
24	9.768414	768438	768462	768486	768510	768534	768558	768582	768607	768631	768655	768679	35	1	
25	9.768703	768727	768751	768775	768799	768824	768848	768872	768896	768920	768944	768968	34	2	
26	9.768992	769016	769040	769065	769089	769113	769137	769161	769185	769209	769233	769257	33	3	
27	9.769281	769306	769330	769354	769378	769402	769426	769450	769474	769498	769522	769546	32	4	
28	9.769571	769595	769619	769643	769667	769691	769715	769739	769763	769787	769811	769836	31	1	
29	9.769860	769884	769908	769932	769956	769980	770004	770028	770052	770076	770100	770124	30	2	
30	9.770149	770173	770197	770221	770245	770269	770293	770317	770341	770365	770389	770413	29	3	
31	9.770437	770461	770486	770510	770534	770558	770582	770606	770630	770654	770678	770702	28	4	
32	9.770726	770750	770774	770798	770822	770846	770870	770895	770919	770943	770967	770991	27	1	
33	9.771015	771039	771063	771087	771111	771135	771159	771183	771207	771231	771255	771279	26	2	
34	9.771303	771327	771351	771375	771399	771424	771448	771472	771496	771520	771544	771568	25	3	
35	9.771592	771616	771640	771664	771688	771712	771736	771760	771784	771808	771832	771856	24	4	
36	9.771880	771904	771928	771952	771976	772000	772024	772048	772072	772096	772120	772144	23	1	
37	9.772168	772192	772216	772240	772265	772289	772313	772337	772361	772385	772409	772433	22	2	
38	9.772457	772481	772505	772529	772553	772577	772601	772625	772649	772673	772697	772721	21	3	
39	9.772745	772769	772793	772817	772841	772865	772889	772913	772937	772961	772985	773009	20	4	
40	9.773033	773057	773081	773105	773129	773153	773177	773201	773225	773249	773273	773297	19	1	
41	9.773321	773345	773369	773393	773417	773441	773465	773489	773513	773537	773560	773584	18	2	
42	9.773608	773632	773656	773680	773704	773728	773752	773776	773800	773824	773848	773872	17	3	
43	9.773896	773920	773944	773968	773992	774016	774040	774064	774088	774112	774136	774160	16	4	
44	9.774184	774208	774232	774256	774280	774304	774328	774352	774376	774400	774423	774447	15	1	
45	9.774471	774495	774519	774543	774567	774591	774615	774639	774663	774687	774711	774735	14	2	
46	9.774759	774783	774807	774831	774855	774879	774903	774926	774950	774974	774998	775022	13	3	
47	9.775046	775070	775094	775118	775142	775166	775190	775214	775238	775262	775286	775310	12	4	
48	9.775333	775357	775381	775405	775429	775453	775477	775501	775525	775549	775573	775597	11	1	
49	9.775621	775645	775669	775693	775717	775741	775765	775789	775813	775837	775860	775884	10	2	
50	9.775908	775932	775956	775980	776003	776027	776051	776075	776099	776123	776147	776171	9	3	
51	9.776195	776219	776243	776267	776290	776314	776338	776362	776386	776410	776434	776458	8	4	
52	9.776482	776506	776529	776553	776577	776601	776625	776649	776673	776697	776721	776745	7	1	
53	9.776769	776793	776816	776840	776864	776888	776912	776936	776960	776984	777007	777031	6	2	
54	9.777055	777079	777103	777127	777151	777175	777199	777222	777246	777270	777294	777318	5	3	
55	9.777342	777366	777390	777414	777437	777461	777485	777509	777533	777557	777581	777605	4	4	
56	9.777628	777652	777676	777700	777724	777748	777772	777796	777819	777843	777867	777891	3	1	
57	9.777915	777939	777963	777987	778010	778034	778058	778082	778106	778130	778154	778177	2	2	
58	9.778201	778225	778249	778273	778297	778321	778344	778368	778392	778416	778440	778464	1	3	
59	9.778488	778511	778535	778559	778583	778607	778631	778655	778678	778702	778726	778750	0	4	
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'															
Co-tangent of 59 degrees, or Tangent of 149 degrees.															
Minutes														Minutes	Prop.

LOGARITHMIC TANGENTS.

Tangent of 31 degrees, or Co-tangent of 121 degrees.											Minutes	Proport. parts.
0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'		
78774	778798	778821	778845	778869	778893	778917	778941	778965	778988	779012	59	1" = 5
79060	779084	779108	779131	779155	779179	779203	779227	779251	779274	779298	58	2. 10
9346	779370	779394	779417	779441	779465	779489	779513	779537	779560	779584	57	3. 14
9632	779656	779680	779703	779727	779751	779775	779799	779822	779846	779870	56	4. 10
9918	779942	779965	779989	780013	780037	780061	780084	780108	780132	780156	55	1 = 5
10203	780227	780251	780275	780299	780323	780346	780370	780394	780418	780442	54	2. 10
10489	780513	780537	780561	780584	780608	780632	780656	780680	780703	780727	53	3. 14
10775	780799	780822	780846	780870	780894	780917	780941	780965	780989	781013	52	4. 19
11060	781084	781108	781132	781155	781179	781203	781227	781251	781274	781298	51	1 = 5
11346	781369	781393	781417	781441	781465	781488	781512	781536	781560	781583	50	2. 10
11631	781655	781679	781702	781726	781750	781774	781797	781821	781845	781869	49	3. 14
11916	781940	781964	781987	782011	782035	782059	782083	782106	782130	782154	48	4. 19
12201	782225	782249	782273	782296	782320	782344	782368	782391	782415	782439	47	1 = 5
12486	782510	782534	782558	782581	782605	782629	782653	782676	782700	782724	46	2. 10
12771	782795	782819	782843	782866	782890	782914	782938	782961	782985	783009	45	3. 14
13056	783080	783104	783127	783151	783175	783199	783222	783246	783270	783294	44	4. 19
13341	783365	783389	783412	783436	783460	783483	783507	783531	783555	783578	43	1 = 5
13626	783650	783673	783697	783721	783744	783768	783792	783816	783839	783863	42	2. 9
13910	783934	783958	783982	784005	784029	784053	784076	784100	784124	784148	41	3. 14
14195	784219	784243	784266	784290	784314	784337	784361	784385	784408	784432	40	4. 19
14479	784503	784527	784551	784574	784598	784622	784645	784669	784693	784716	39	1 = 5
14764	784788	784811	784835	784859	784882	784906	784930	784953	784977	785001	38	2. 9
15048	785072	785095	785119	785143	785167	785190	785214	785238	785261	785285	37	3. 14
15332	785356	785380	785403	785427	785451	785474	785498	785522	785545	785569	36	4. 19
15616	785640	785664	785687	785711	785735	785758	785782	785806	785829	785853	35	1 = 5
15900	785924	785948	785971	785995	786019	786042	786066	786090	786113	786137	34	2. 9
16184	786208	786232	786255	786279	786303	786326	786350	786374	786397	786421	33	3. 14
16468	786492	786516	786539	786563	786587	786610	786634	786657	786681	786705	32	4. 19
16752	786776	786799	786823	786847	786870	786894	786918	786941	786965	786988	31	1 = 5
17036	787059	787083	787107	787130	787154	787178	787201	787225	787248	787272	30	2. 9
17319	787343	787367	787390	787414	787438	787461	787485	787508	787532	787556	29	3. 14
17603	787627	787650	787674	787697	787721	787745	787768	787792	787815	787839	28	4. 19
17886	787910	787934	787957	787981	788004	788028	788052	788075	788099	788122	27	1 = 5
18170	788193	788217	788241	788264	788288	788311	788335	788359	788382	788406	26	2. 9
18453	788477	788500	788524	788547	788571	788595	788618	788642	788665	788689	25	3. 14
18736	788760	788783	788807	788831	788854	788878	788901	788925	788949	788972	24	4. 19
19019	789043	789066	789090	789114	789137	789161	789184	789208	789232	789255	23	1 = 5
19302	789326	789349	789373	789397	789420	789444	789467	789491	789515	789538	22	2. 9
19585	789609	789632	789656	789680	789703	789727	789750	789774	789797	789821	21	3. 14
19868	789892	789915	789939	789962	789986	790010	790033	790057	790080	790104	20	4. 19
20151	790174	790198	790222	790245	790269	790292	790316	790339	790363	790386	19	1 = 5
20434	790457	790481	790504	790528	790551	790575	790598	790622	790646	790669	18	2. 9
20717	790740	790763	790787	790810	790834	790857	790881	790905	790928	790952	17	3. 14
21000	791022	791046	791069	791093	791116	791140	791163	791187	791211	791234	16	4. 19
21283	791305	791328	791352	791375	791399	791422	791446	791469	791493	791516	15	1 = 5
21566	791587	791611	791634	791658	791681	791705	791728	791752	791775	791799	14	2. 9
21849	791869	791893	791916	791940	791963	791987	792010	792034	792057	792081	13	3. 14
22132	792152	792175	792199	792222	792246	792269	792293	792316	792340	792363	12	4. 19
22415	792434	792457	792481	792504	792528	792551	792575	792598	792622	792645	11	1 = 5
22698	792716	792739	792763	792786	792810	792833	792857	792880	792904	792927	10	2. 9
22981	792998	793021	793045	793068	793092	793115	793139	793162	793186	793209	9	3. 14
23264	793279	793303	793326	793350	793373	793397	793420	793444	793467	793491	8	4. 19
23547	793561	793585	793608	793632	793655	793679	793702	793726	793749	793773	7	1 = 5
23830	793843	793866	793890	793913	793937	793960	793984	794007	794031	794054	6	2. 9
24113	794125	794148	794172	794195	794218	794242	794265	794289	794312	794336	5	3. 14
24396	794406	794430	794453	794477	794500	794523	794547	794570	794594	794617	4	4. 19
24679	794688	794711	794735	794758	794781	794805	794828	794852	794875	794899	3	1 = 5
24962	794969	794992	795016	795039	795063	795086	795110	795133	795157	795180	2	2. 9
25245	795250	795274	795297	795321	795344	795368	795391	795414	795438	795461	1	3. 14
25528	795532	795555	795578	795602	795625	795649	795672	795696	795719	795742	0	4. 19
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-tangent of 58 degrees, or Tangent of 148 degrees.											Minutes	Proport. parts.

LOGARITHMIC TANGENTS.

Minutes	Tangent of 32 degrees, or Co-tangent of 122 degrees.												Minutes	Prop. parts.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	9.795789	795813	795836	795859	795883	795906	795930	795953	795977	796000	796024	796047	59	1 =
1	9.796070	796094	796117	796141	796164	796187	796211	796234	796258	796281	796305	796328	58	2.
2	9.796351	796375	796398	796422	796445	796468	796492	796515	796539	796562	796585	796609	57	3.
3	9.796632	796656	796679	796702	796726	796749	796773	796796	796819	796843	796866	796890	56	4.
4	9.796913	796936	796960	796983	797007	797030	797053	797077	797100	797124	797147	797170	55	1 =
5	9.797194	797217	797241	797264	797287	797311	797334	797358	797381	797404	797428	797451	54	2.
6	9.797475	797498	797521	797545	797568	797591	797615	797638	797662	797685	797708	797732	53	3.
7	9.797755	797778	797802	797825	797849	797872	797895	797919	797942	797966	797989	798012	52	4.
8	9.798036	798059	798082	798106	798129	798152	798176	798199	798223	798246	798269	798293	51	1 =
9	9.798316	798339	798363	798386	798410	798433	798456	798480	798503	798526	798550	798573	50	2.
10	9.798596	798620	798643	798667	798690	798713	798737	798760	798783	798807	798830	798853	49	3.
11	9.798877	798900	798923	798947	798970	798993	799017	799040	799064	799087	799110	799134	48	4.
12	9.799157	799180	799204	799227	799250	799274	799297	799320	799344	799367	799390	799414	47	1 =
13	9.799437	799460	799484	799507	799530	799554	799577	799600	799624	799647	799670	799694	46	2.
14	9.799717	799740	799764	799787	799810	799834	799857	799880	799904	799927	799950	799974	45	3.
15	9.799997	800020	800044	800067	800090	800114	800137	800160	800184	800207	800230	800254	44	4.
16	9.800277	800300	800324	800347	800370	800394	800417	800440	800464	800487	800510	800533	43	1 =
17	9.800557	800580	800603	800627	800650	800673	800697	800720	800743	800766	800790	800813	42	2.
18	9.800837	800860	800883	800906	800930	800953	800976	801000	801023	801046	801070	801093	41	3.
19	9.801116	801139	801163	801186	801209	801233	801256	801279	801303	801326	801349	801372	40	4.
20	9.801396	801419	801442	801466	801489	801512	801536	801559	801582	801605	801629	801652	39	1 =
21	9.801675	801699	801722	801745	801768	801792	801815	801838	801862	801885	801908	801931	38	2.
22	9.801955	801978	802001	802025	802048	802071	802094	802118	802141	802164	802187	802211	37	3.
23	9.802234	802257	802281	802304	802327	802350	802374	802397	802420	802444	802467	802490	36	4.
24	9.802513	802537	802560	802583	802606	802630	802653	802676	802699	802723	802746	802769	35	1 =
25	9.802793	802816	802839	802862	802886	802909	802932	802955	802979	803002	803025	803048	34	2.
26	9.803072	803095	803118	803141	803165	803188	803211	803234	803258	803281	803304	803327	33	3.
27	9.803351	803374	803397	803420	803444	803467	803490	803513	803537	803560	803583	803606	32	4.
28	9.803630	803653	803676	803699	803723	803746	803769	803792	803816	803839	803862	803885	31	1 =
29	9.803909	803932	803955	803978	804002	804025	804048	804071	804094	804118	804141	804164	30	2.
30	9.804187	804211	804234	804257	804280	804304	804327	804350	804373	804396	804420	804443	29	3.
31	9.804466	804489	804513	804536	804559	804582	804605	804629	804652	804675	804698	804722	28	4.
32	9.804745	804768	804791	804814	804838	804861	804884	804907	804931	804954	804977	805000	27	1 =
33	9.805023	805047	805070	805093	805116	805139	805163	805186	805209	805232	805255	805279	26	2.
34	9.805302	805325	805348	805372	805395	805418	805441	805464	805488	805511	805534	805557	25	3.
35	9.805580	805604	805627	805650	805673	805696	805720	805743	805766	805789	805812	805836	24	4.
36	9.805859	805882	805905	805928	805951	805975	805998	806021	806044	806067	806091	806114	23	1 =
37	9.806137	806160	806183	806207	806230	806253	806276	806299	806322	806346	806369	806392	22	2.
38	9.806415	806438	806462	806485	806508	806531	806554	806577	806600	806624	806647	806670	21	3.
39	9.806693	806717	806740	806763	806786	806809	806832	806856	806879	806902	806925	806948	20	4.
40	9.806971	806995	807018	807041	807064	807087	807110	807134	807157	807180	807203	807226	19	1 =
41	9.807249	807273	807296	807319	807342	807365	807388	807412	807435	807458	807481	807504	18	2.
42	9.807527	807551	807574	807597	807620	807643	807666	807689	807713	807736	807759	807782	17	3.
43	9.807805	807828	807852	807875	807898	807921	807944	807967	807990	808014	808037	808060	16	4.
44	9.808083	808106	808129	808152	808176	808199	808222	808245	808268	808291	808314	808338	15	1 =
45	9.808361	808384	808407	808430	808453	808476	808500	808523	808546	808569	808592	808615	14	2.
46	9.808638	808661	808685	808708	808731	808754	808777	808800	808823	808846	808870	808893	13	3.
47	9.808916	808939	808962	808985	809008	809031	809055	809078	809101	809124	809147	809170	12	4.
48	9.809193	809216	809240	809263	809286	809309	809332	809355	809378	809401	809425	809448	11	1 =
49	9.809471	809494	809517	809540	809563	809586	809609	809633	809656	809679	809702	809725	10	2.
50	9.809748	809771	809794	809817	809841	809864	809887	809910	809933	809956	809979	810002	9	3.
51	9.810025	810048	810072	810095	810118	810141	810164	810187	810210	810233	810256	810279	8	4.
52	9.810303	810326	810349	810372	810395	810418	810441	810464	810487	810510	810533	810557	7	1 =
53	9.810580	810603	810626	810649	810672	810695	810718	810741	810764	810787	810811	810834	6	2.
54	9.810857	810880	810903	810926	810949	810972	810995	811018	811041	811064	811087	811111	5	3.
55	9.811134	811157	811180	811203	811226	811249	811272	811295	811318	811341	811364	811387	4	4.
56	9.811411	811434	811457	811480	811503	811526	811549	811572	811595	811618	811641	811664	3	1 =
57	9.811687	811710	811733	811757	811780	811803	811826	811849	811872	811895	811918	811941	2	2.
58	9.811964	811987	812010	812033	812056	812079	812102	812126	812149	812172	812195	812218	1	3.
59	9.812241	812264	812287	812310	812333	812356	812379	812402	812425	812448	812471	812494	0	4.
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Prop. parts.
Co-tangent of 57 degrees, or Tangent of 147 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 33 degrees, or Co tangent of 123 degrees.											Minutes	Proportional parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
517	812540	812564	812587	812610	812633	812656	812679	812702	812725	812748	59	1" = 5
794	812817	812840	812863	812886	812909	812932	812955	812978	813001	813024	58	2. 9
1070	813093	813116	813140	813163	813186	813209	813232	813255	813278	813301	57	3. 14
347	813370	813393	813416	813439	813462	813485	813508	813531	813554	813577	56	4. 18
623	813646	813669	813692	813715	813738	813761	813784	813807	813830	813853	55	1 = 5
899	813922	813945	813968	813991	814014	814037	814061	814084	814107	814130	54	2. 9
1176	814199	814222	814245	814268	814291	814314	814337	814360	814383	814406	53	3. 14
452	814475	814498	814521	814544	814567	814590	814613	814636	814659	814682	52	4. 18
728	814751	814774	814797	814820	814843	814866	814889	814912	814935	814958	51	1 = 5
004	815027	815050	815073	815096	815119	815142	815165	815188	815211	815234	50	2. 9
280	815303	815326	815349	815372	815395	815418	815440	815463	815486	815509	49	3. 14
555	815578	815601	815624	815647	815670	815693	815716	815739	815762	815785	48	4. 18
831	815854	815877	815900	815923	815946	815969	815992	816015	816038	816061	47	1 = 5
1107	816130	816153	816176	816199	816222	816245	816268	816291	816314	816337	46	2. 9
382	816405	816428	816451	816474	816497	816520	816543	816566	816589	816612	45	3. 14
658	816681	816704	816727	816750	816773	816796	816819	816842	816865	816888	44	4. 18
934	816956	816979	817002	817025	817048	817071	817094	817117	817140	817163	43	1 = 5
209	817232	817255	817278	817301	817324	817347	817370	817392	817415	817438	42	2. 9
484	817507	817530	817553	817576	817599	817622	817645	817668	817691	817714	41	3. 14
760	817782	817805	817828	817851	817874	817897	817920	817943	817966	817989	40	4. 18
035	818058	818081	818104	818126	818149	818172	818195	818218	818241	818264	39	1 = 5
310	818333	818356	818379	818402	818424	818447	818470	818493	818516	818539	38	2. 9
585	818608	818631	818654	818677	818700	818722	818745	818768	818791	818814	37	3. 14
860	818883	818906	818929	818952	818974	818997	819020	819043	819066	819089	36	4. 18
1135	819158	819181	819204	819226	819249	819272	819295	819318	819341	819364	35	1 = 5
410	819433	819456	819478	819501	819524	819547	819570	819593	819616	819639	34	2. 9
684	819707	819730	819753	819776	819799	819822	819845	819868	819891	819913	33	3. 14
959	819982	820005	820028	820051	820074	820097	820119	820142	820165	820188	32	4. 18
234	820257	820280	820303	820325	820348	820371	820394	820417	820440	820463	31	1 = 5
508	820533	820556	820578	820600	820623	820646	820669	820691	820714	820737	30	2. 9
783	820806	820829	820852	820874	820897	820920	820943	820966	820989	821012	29	3. 14
057	821080	821103	821126	821149	821172	821195	821217	821240	821263	821286	28	4. 18
332	821355	821378	821400	821423	821446	821469	821492	821515	821538	821560	27	1 = 5
606	821629	821652	821675	821698	821720	821743	821766	821789	821812	821835	26	2. 9
880	821903	821926	821949	821972	821995	822017	822040	822063	822086	822109	25	3. 14
155	822177	822200	822223	822246	822269	822292	822314	822337	822360	822383	24	4. 18
429	822451	822474	822497	822520	822543	822566	822589	822611	822634	822657	23	1 = 5
703	822726	822748	822771	822794	822817	822840	822863	822885	822908	822931	22	2. 9
977	822999	823022	823045	823068	823091	823114	823136	823159	823182	823205	21	3. 14
251	823273	823296	823319	823342	823365	823387	823410	823433	823456	823479	20	4. 18
524	823547	823570	823593	823616	823638	823661	823684	823707	823730	823753	19	1 = 5
798	823821	823844	823867	823889	823912	823935	823958	823981	824003	824026	18	2. 9
072	824095	824118	824140	824163	824186	824209	824232	824254	824277	824300	17	3. 14
346	824368	824391	824414	824437	824460	824482	824505	824528	824551	824574	16	4. 18
619	824642	824665	824688	824710	824733	824756	824779	824801	824824	824847	15	1 = 5
893	824915	824938	824961	824984	825007	825029	825052	825075	825098	825121	14	2. 9
166	825189	825212	825234	825257	825280	825303	825326	825348	825371	825394	13	3. 14
439	825462	825485	825508	825531	825553	825576	825599	825622	825644	825667	12	4. 18
713	825736	825758	825781	825804	825827	825849	825872	825895	825918	825940	11	1 = 5
986	826009	826032	826054	826077	826100	826123	826145	826168	826191	826214	10	2. 9
259	826282	826305	826328	826350	826373	826396	826419	826441	826464	826487	9	3. 14
532	826555	826578	826601	826623	826646	826669	826692	826714	826737	826760	8	4. 18
805	826828	826851	826874	826896	826919	826942	826965	826987	827010	827033	7	1 = 5
078	827101	827124	827147	827169	827192	827215	827238	827260	827283	827306	6	2. 9
351	827374	827397	827420	827442	827465	827488	827510	827533	827556	827579	5	3. 14
624	827647	827670	827692	827715	827738	827761	827783	827806	827829	827851	4	4. 18
897	827920	827942	827965	827988	828011	828033	828056	828079	828102	828124	3	1 = 5
170	828192	828215	828238	828261	828283	828306	828329	828351	828374	828397	2	2. 9
442	828465	828488	828511	828533	828556	828579	828601	828624	828647	828670	1	3. 14
715	828738	828760	828783	828806	828829	828851	828874	828897	828919	828942	0	4. 18
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minute	Proportional parts.
Co-tangent of 56 degrees, or Tangent of 146 degrees.											Minute	Proportional parts.

LOGARITHMIC TANGENTS.

Tangent of 34 degrees, or Co-tangent of 124 degrees.														Minutes	Propor. parts.
Minutes	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
0	9.828987	829010	829033	829056	829078	829101	829124	829146	829169	829192	829215	829237	59	1"	
1	9.829260	829283	829305	829328	829351	829373	829396	829419	829442	829464	829487	829510	58	2"	
2	9.829532	829555	829578	829600	829623	829646	829669	829691	829714	829737	829759	829782	57	3"	
3	9.829805	829827	829850	829873	829895	829918	829941	829964	829986	830009	830032	830054	56	4"	
4	9.830077	830100	830122	830145	830168	830190	830213	830236	830258	830281	830304	830327	55	1"	
5	9.830349	830372	830395	830417	830440	830463	830485	830508	830531	830553	830576	830599	54	2"	
6	9.830621	830644	830667	830689	830712	830735	830757	830780	830803	830825	830848	830871	53	3"	
7	9.830893	830916	830939	830961	830984	831007	831029	831052	831075	831097	831120	831143	52	4"	
8	9.831165	831188	831211	831233	831256	831279	831301	831324	831347	831369	831392	831415	51	1"	
9	9.831437	831460	831483	831505	831528	831551	831573	831596	831619	831641	831664	831687	50	2"	
10	9.831709	831732	831755	831777	831800	831823	831845	831868	831891	831913	831936	831959	49	3"	
11	9.831981	832004	832026	832049	832072	832094	832117	832140	832162	832185	832208	832230	48	4"	
12	9.832253	832276	832298	832321	832344	832366	832389	832411	832434	832457	832479	832502	47	1"	
13	9.832525	832547	832570	832593	832615	832638	832661	832683	832706	832729	832751	832774	46	2"	
14	9.832796	832819	832842	832864	832887	832910	832932	832955	832977	833000	833023	833045	45	3"	
15	9.833068	833091	833113	833136	833158	833181	833204	833226	833249	833272	833294	833317	44	4"	
16	9.833339	833362	833385	833407	833430	833453	833475	833498	833520	833543	833566	833588	43	1"	
17	9.833611	833634	833656	833679	833701	833724	833747	833769	833792	833814	833837	833860	42	2"	
18	9.833882	833905	833928	833950	833973	833995	834018	834041	834063	834086	834108	834131	41	3"	
19	9.834154	834176	834199	834221	834244	834267	834289	834312	834335	834357	834380	834402	40	4"	
20	9.834425	834448	834470	834493	834515	834538	834561	834583	834606	834628	834651	834674	39	1"	
21	9.834696	834719	834741	834764	834787	834809	834832	834854	834877	834900	834922	834945	38	2"	
22	9.834967	834990	835013	835035	835058	835080	835103	835125	835148	835171	835193	835216	37	3"	
23	9.835238	835261	835284	835306	835329	835351	835374	835397	835419	835442	835464	835487	36	4"	
24	9.835509	835532	835555	835577	835600	835622	835645	835668	835690	835713	835735	835758	35	1"	
25	9.835780	835803	835826	835848	835871	835893	835916	835938	835961	835983	836006	836029	34	2"	
26	9.836051	836074	836096	836119	836142	836164	836187	836209	836232	836254	836277	836300	33	3"	
27	9.836322	836345	836367	836390	836412	836435	836458	836480	836503	836525	836548	836570	32	4"	
28	9.836593	836616	836638	836661	836683	836706	836728	836751	836773	836796	836819	836841	31	1"	
29	9.836864	836886	836909	836931	836954	836976	836999	837022	837044	837067	837089	837112	30	2"	
30	9.837134	837157	837179	837202	837225	837247	837270	837292	837315	837337	837360	837382	29	3"	
31	9.837405	837428	837450	837473	837495	837518	837540	837563	837585	837608	837630	837653	28	4"	
32	9.837676	837698	837721	837743	837766	837788	837811	837833	837856	837878	837901	837923	27	1"	
33	9.837946	837969	837991	838014	838036	838059	838081	838104	838126	838149	838171	838194	26	2"	
34	9.838216	838239	838261	838284	838307	838329	838352	838374	838397	838419	838442	838464	25	3"	
35	9.838487	838509	838532	838554	838577	838599	838622	838644	838667	838690	838712	838735	24	4"	
36	9.838757	838780	838802	838825	838847	838870	838892	838915	838937	838960	838982	839005	23	1"	
37	9.839027	839050	839072	839095	839117	839140	839162	839185	839207	839230	839252	839275	22	2"	
38	9.839298	839320	839343	839365	839388	839410	839433	839455	839478	839500	839523	839545	21	3"	
39	9.839568	839590	839613	839635	839658	839680	839703	839725	839748	839770	839793	839815	20	4"	
40	9.839838	839860	839883	839905	839928	839950	839973	839995	840018	840040	840063	840085	19	1"	
41	9.840108	840130	840153	840175	840198	840220	840243	840265	840288	840310	840333	840355	18	2"	
42	9.840378	840400	840423	840445	840468	840490	840513	840535	840558	840580	840603	840625	17	3"	
43	9.840648	840670	840693	840715	840738	840760	840783	840805	840828	840850	840872	840895	16	4"	
44	9.840917	840940	840962	840985	841007	841030	841052	841075	841097	841120	841142	841165	15	1"	
45	9.841187	841210	841232	841255	841277	841300	841322	841345	841367	841389	841412	841434	14	2"	
46	9.841457	841479	841502	841524	841547	841569	841592	841614	841637	841659	841682	841704	13	3"	
47	9.841727	841749	841772	841794	841816	841839	841861	841884	841906	841929	841951	841974	12	4"	
48	9.841996	842019	842041	842064	842086	842108	842131	842153	842176	842198	842221	842243	11	1"	
49	9.842266	842288	842311	842333	842356	842378	842400	842423	842445	842468	842490	842513	10	2"	
50	9.842535	842558	842580	842603	842625	842647	842670	842692	842715	842737	842760	842782	9	3"	
51	9.842805	842827	842850	842872	842894	842917	842939	842962	842984	843007	843029	843052	8	4"	
52	9.843074	843096	843119	843141	843164	843186	843209	843231	843254	843276	843298	843321	7	1"	
53	9.843343	843366	843388	843411	843433	843455	843478	843500	843523	843545	843568	843590	6	2"	
54	9.843613	843635	843657	843680	843702	843725	843747	843770	843792	843814	843837	843859	5	3"	
55	9.843882	843904	843927	843949	843971	843994	844016	844039	844061	844084	844106	844128	4	4"	
56	9.844151	844173	844196	844218	844241	844263	844285	844308	844330	844353	844375	844398	3	1"	
57	9.844420	844442	844465	844487	844510	844532	844554	844577	844599	844622	844644	844667	2	2"	
58	9.844689	844711	844734	844756	844779	844801	844823	844846	844868	844891	844913	844936	1	3"	
59	9.844958	844980	845003	845025	845048	845070	845092	845115	845137	845160	845182	845204	0	4"	
	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"			
Co-tangent of 55 degrees, or Tangent of 145 degrees.														Minutes	Propor. parts.

LOGARITHMIC TANGENTS.

Tangent of 35 degrees, or Co-tangent of 125 degrees.												Minutes	Proper parts.
°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
5227	845249	845272	845294	845316	845339	845361	845384	845406	845428	845451	845473	59	1" = 4
5496	845458	845480	845503	845525	845548	845569	845592	845614	845637	845659	845682	58	2. 9
5764	845678	845700	845723	845745	845767	845789	845812	845834	845857	845879	845902	57	3. 13
6033	846056	846078	846100	846123	846145	846168	846190	846212	846235	846257	846280	56	4. 18
6302	846324	846347	846369	846391	846414	846436	846459	846481	846503	846526	846548	55	1 = 4
6571	846593	846615	846638	846660	846682	846705	846727	846750	846772	846794	846817	54	2. 9
6839	846861	846884	846906	846929	846951	846973	846996	847018	847040	847063	847085	53	3. 13
7108	847130	847152	847175	847197	847219	847242	847264	847287	847309	847331	847354	52	4. 18
7376	847398	847421	847443	847466	847488	847510	847533	847555	847577	847600	847622	51	1 = 4
7644	847667	847689	847712	847734	847756	847779	847801	847823	847846	847868	847890	50	2. 9
7913	847935	847957	847980	848002	848025	848047	848069	848092	848114	848136	848159	49	3. 13
8181	848203	848226	848248	848270	848293	848315	848338	848360	848382	848405	848427	48	4. 18
8449	848472	848494	848516	848539	848561	848583	848606	848628	848650	848673	848695	47	1 = 4
8717	848740	848762	848785	848807	848829	848852	848874	848897	848919	848941	848964	46	2. 9
8986	849008	849030	849053	849075	849097	849120	849142	849164	849187	849209	849231	45	3. 13
9254	849276	849298	849321	849343	849365	849388	849410	849432	849455	849477	849499	44	4. 18
9522	849544	849566	849589	849611	849633	849656	849678	849700	849723	849745	849767	43	1 = 4
9790	849812	849834	849857	849879	849901	849924	849946	849968	849991	850013	850035	42	2. 9
10058	850080	850102	850124	850147	850169	850191	850214	850236	850258	850281	850303	41	3. 13
10325	850348	850370	850392	850415	850437	850459	850482	850504	850526	850549	850571	40	4. 18
10593	850615	850638	850660	850682	850705	850727	850749	850772	850794	850816	850839	39	1 = 4
10861	850883	850906	850928	850950	850972	850995	851017	851039	851062	851084	851106	38	2. 9
11129	851151	851173	851195	851218	851240	851262	851285	851307	851329	851352	851374	37	3. 13
11396	851418	851441	851463	851485	851508	851530	851552	851575	851597	851619	851641	36	4. 18
11664	851686	851708	851731	851753	851775	851798	851820	851842	851864	851887	851909	35	1 = 4
11931	851954	851976	851998	852020	852043	852065	852087	852110	852132	852154	852176	34	2. 9
12199	852221	852243	852266	852288	852310	852332	852355	852377	852399	852422	852444	33	3. 13
12466	852488	852511	852533	852555	852578	852600	852622	852644	852667	852689	852711	32	4. 18
12734	852756	852778	852800	852823	852845	852867	852889	852912	852934	852956	852979	31	1 = 4
13001	853023	853045	853068	853090	853112	853134	853157	853179	853201	853224	853246	30	2. 9
13268	853300	853323	853345	853367	853389	853412	853434	853456	853479	853501	853523	29	3. 13
13535	853580	853602	853624	853646	853668	853690	853712	853734	853756	853779	853801	28	4. 18
13802	853825	853847	853869	853891	853914	853936	853958	853980	854003	854025	854047	27	1 = 4
14069	854092	854114	854136	854158	854181	854203	854225	854248	854270	854293	854315	26	2. 9
14337	854359	854381	854403	854426	854448	854470	854492	854515	854537	854559	854581	25	3. 13
14603	854626	854648	854670	854692	854715	854737	854759	854781	854804	854826	854848	24	4. 18
14870	854893	854915	854937	854959	854982	855004	855026	855048	855071	855093	855115	23	1 = 4
15137	855160	855182	855204	855226	855248	855271	855293	855315	855337	855359	855382	22	2. 9
15404	855426	855448	855471	855493	855515	855538	855560	855582	855604	855626	855648	21	3. 13
15671	855693	855715	855738	855760	855782	855804	855826	855848	855871	855893	855915	20	4. 18
15938	855960	855982	856004	856026	856049	856071	856093	856115	856138	856160	856182	19	1 = 4
16204	856226	856249	856271	856293	856315	856338	856360	856382	856404	856426	856448	18	2. 9
16471	856493	856515	856538	856560	856582	856604	856626	856649	856671	856693	856715	17	3. 13
16737	856760	856782	856804	856826	856848	856871	856893	856915	856937	856959	856982	16	4. 18
17004	857026	857048	857071	857093	857115	857137	857159	857182	857204	857226	857248	15	1 = 4
17270	857293	857315	857337	857359	857381	857404	857426	857448	857470	857493	857515	14	2. 9
17537	857559	857581	857603	857626	857648	857670	857692	857714	857737	857759	857781	13	3. 13
17803	857825	857848	857870	857892	857914	857936	857959	857981	858003	858025	858047	12	4. 18
18069	858092	858114	858136	858158	858180	858203	858225	858248	858270	858293	858315	11	1 = 4
18336	858358	858380	858402	858424	858447	858469	858491	858513	858535	858558	858580	10	2. 9
18602	858624	858646	858668	858691	858713	858735	858757	858779	858802	858824	858846	9	3. 13
18868	858890	858912	858935	858957	858979	859001	859023	859045	859068	859090	859112	8	4. 18
19134	859156	859178	859201	859223	859245	859267	859289	859312	859334	859356	859378	7	1 = 4
19400	859422	859444	859467	859489	859511	859533	859555	859578	859600	859622	859644	6	2. 9
19666	859688	859711	859733	859755	859777	859799	859821	859843	859866	859888	859910	5	3. 13
19932	859954	859976	859999	860021	860043	860065	860087	860109	860131	860153	860176	4	4. 18
20198	860220	860242	860264	860287	860309	860331	860353	860375	860397	860420	860442	3	1 = 4
20464	860486	860508	860530	860552	860575	860597	860619	860641	860663	860685	860708	2	2. 9
20730	860754	860776	860798	860820	860843	860865	860887	860909	860931	860953	860976	1	3. 13
20995	861018	861040	861062	861084	861106	861128	861150	861172	861194	861217	861239	0	4. 18
°	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proper parts.
Co-tangent of 54 degrees, or Tangent of 144 degrees.												Minutes	Proper parts.

LOGARITHMIC TANGENTS.

Minutes	Tangent of 36 degrees, or Co-tangent of 126 degrees.												Minutes	Proport. parts.
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
0	9.861261	861283	861305	861328	861350	861372	861394	861416	861438	861460	861482	861505	59	1° =
1	9.861527	861549	861571	861593	861615	861637	861660	861682	861704	861726	861748	861770	58	2. 1
2	9.861792	861814	861837	861859	861881	861903	861925	861947	861969	861991	862014	862036	57	3. 1
3	9.862058	862080	862102	862124	862146	862168	862191	862213	862235	862257	862279	862301	56	4. 1
4	9.862323	862345	862368	862390	862412	862434	862456	862478	862500	862522	862545	862567	55	1° =
5	9.862588	862611	862633	862655	862677	862699	862721	862744	862766	862788	862810	862832	54	2. 1
6	9.862854	862876	862898	862921	862943	862965	862987	863009	863031	863053	863075	863097	53	3. 1
7	9.863120	863142	863164	863186	863208	863230	863252	863274	863296	863318	863341	863363	52	4. 1
8	9.863388	863410	863432	863454	863477	863499	863521	863543	863565	863587	863609	863631	51	1° =
9	9.863650	863672	863694	863716	863738	863761	863783	863805	863827	863849	863871	863893	50	2. 1
10	9.863915	863937	863959	863981	864004	864026	864048	864070	864092	864114	864136	864158	49	3. 1
11	9.864180	864202	864225	864247	864269	864291	864313	864335	864357	864379	864401	864423	48	4. 1
12	9.864448	864470	864492	864514	864536	864558	864580	864602	864624	864646	864668	864690	47	1° =
13	9.864711	864733	864755	864777	864799	864821	864843	864865	864887	864909	864931	864953	46	2. 1
14	9.864976	864998	865020	865042	865064	865086	865108	865130	865152	865174	865196	865218	45	3. 1
15	9.865240	865262	865285	865307	865329	865351	865373	865395	865417	865439	865461	865483	44	4. 1
16	9.865505	865527	865550	865572	865594	865616	865638	865660	865682	865704	865726	865748	43	1° =
17	9.865770	865792	865814	865836	865858	865881	865903	865925	865947	865969	865991	866013	42	2. 1
18	9.866035	866057	866079	866101	866123	866145	866167	866189	866211	866233	866255	866277	41	3. 1
19	9.866300	866322	866344	866366	866388	866410	866432	866454	866476	866498	866520	866542	40	4. 1
20	9.866564	866586	866608	866631	866653	866675	866697	866719	866741	866763	866785	866807	39	1° =
21	9.866829	866851	866873	866895	866917	866939	866961	866983	867005	867027	867049	867071	38	2. 1
22	9.867094	867116	867138	867160	867182	867204	867226	867248	867270	867292	867314	867336	37	3. 1
23	9.867358	867380	867402	867424	867446	867468	867491	867513	867535	867557	867579	867601	36	4. 1
24	9.867623	867645	867667	867689	867711	867733	867755	867777	867799	867821	867843	867865	35	1° =
25	9.867887	867909	867931	867953	867975	867997	868020	868042	868064	868086	868108	868130	34	2. 1
26	9.868152	868174	868196	868218	868240	868262	868284	868306	868328	868350	868372	868394	33	3. 1
27	9.868416	868438	868460	868482	868504	868526	868548	868570	868592	868614	868636	868658	32	4. 1
28	9.868680	868702	868724	868746	868768	868791	868813	868835	868857	868879	868901	868923	31	1° =
29	9.868945	868967	868989	869011	869033	869055	869077	869099	869121	869143	869165	869187	30	2. 1
30	9.869209	869231	869253	869275	869297	869319	869341	869363	869385	869407	869429	869451	29	3. 1
31	9.869473	869495	869517	869539	869561	869583	869605	869627	869649	869671	869693	869715	28	4. 1
32	9.869737	869759	869781	869803	869825	869847	869869	869891	869913	869935	869957	869979	27	1° =
33	9.870001	870023	870045	870067	870089	870111	870133	870155	870177	870199	870221	870243	26	2. 1
34	9.870265	870287	870309	870331	870353	870375	870397	870419	870441	870463	870485	870507	25	3. 1
35	9.870529	870551	870573	870595	870617	870639	870661	870683	870705	870727	870749	870771	24	4. 1
36	9.870793	870815	870837	870859	870881	870903	870925	870947	870969	870991	871013	871035	23	1° =
37	9.871057	871079	871101	871123	871145	871167	871189	871211	871233	871255	871277	871299	22	2. 1
38	9.871321	871343	871365	871387	871409	871431	871453	871475	871497	871519	871541	871563	21	3. 1
39	9.871585	871607	871629	871651	871673	871695	871717	871739	871761	871783	871805	871827	20	4. 1
40	9.871849	871871	871893	871915	871937	871959	871981	872003	872025	872047	872069	872091	19	1° =
41	9.872112	872134	872156	872178	872200	872222	872244	872266	872288	872310	872332	872354	18	2. 1
42	9.872376	872398	872420	872442	872464	872486	872508	872530	872552	872574	872596	872618	17	3. 1
43	9.872640	872662	872684	872706	872728	872750	872772	872794	872816	872838	872860	872882	16	4. 1
44	9.872903	872925	872947	872969	872991	873013	873035	873057	873079	873101	873123	873145	15	1° =
45	9.873167	873189	873211	873233	873255	873277	873299	873321	873343	873365	873387	873409	14	2. 1
46	9.873430	873452	873474	873496	873518	873540	873562	873584	873606	873628	873650	873672	13	3. 1
47	9.873694	873716	873738	873760	873782	873804	873826	873848	873870	873892	873914	873936	12	4. 1
48	9.873957	873979	874001	874023	874045	874067	874089	874111	874133	874155	874177	874199	11	1° =
49	9.874220	874242	874264	874286	874308	874330	874352	874374	874396	874418	874440	874462	10	2. 1
50	9.874484	874506	874528	874550	874572	874594	874616	874638	874660	874682	874704	874726	9	3. 1
51	9.874747	874769	874791	874813	874835	874857	874879	874901	874923	874945	874967	874989	8	4. 1
52	9.875010	875032	875054	875076	875098	875120	875142	875164	875186	875208	875230	875252	7	1° =
53	9.875273	875295	875317	875339	875361	875383	875405	875427	875449	875471	875493	875515	6	2. 1
54	9.875537	875559	875581	875603	875625	875647	875669	875691	875713	875735	875757	875779	5	3. 1
55	9.875800	875822	875844	875866	875888	875910	875932	875954	875976	875998	876020	876042	4	4. 1
56	9.876063	876085	876107	876129	876151	876173	876195	876217	876239	876261	876283	876305	3	1° =
57	9.876326	876348	876370	876392	876414	876436	876458	876480	876502	876524	876546	876568	2	2. 1
58	9.876589	876611	876633	876655	876677	876699	876721	876743	876765	876787	876809	876831	1	3. 1
59	9.876852	876874	876896	876918	876940	876962	876984	877006	877028	877050	877072	877094	0	4. 1
Minutes	60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-tangent of 53 degrees, or Tangent of 143 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 37 degrees, or Co-tangent of 127 degrees.												Minute	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
14	877136	877158	877180	877202	877224	877246	877268	877290	877312	877333	877355	59	1° = 4
17	877399	877421	877443	877465	877487	877509	877531	877552	877574	877596	877618	58	2. 9
40	877662	877684	877706	877728	877750	877771	877793	877815	877837	877859	877881	57	3. 13
63	877925	877947	877968	877990	878012	878034	878056	878078	878100	878122	878144	56	4. 18
65	878187	878209	878231	878253	878275	878297	878319	878341	878362	878384	878406	55	1° = 4
28	878450	878472	878494	878516	878538	878559	878581	878603	878625	878647	878669	54	2. 9
91	878713	878735	878756	878778	878800	878822	878844	878866	878888	878910	878931	53	3. 13
53	878975	878997	879019	879041	879063	879085	879106	879128	879150	879172	879194	52	4. 18
16	879238	879260	879282	879303	879325	879347	879369	879391	879413	879435	879456	51	1° = 4
78	879500	879522	879544	879566	879588	879610	879631	879653	879675	879697	879719	50	2. 9
41	879763	879784	879806	879828	879850	879872	879894	879916	879938	879959	879981	49	3. 13
63	880025	880047	880069	880091	880112	880134	880156	880178	880200	880222	880244	48	4. 17
65	880287	880309	880331	880353	880375	880397	880418	880440	880462	880484	880506	47	1° = 4
28	880550	880571	880593	880615	880637	880659	880681	880703	880724	880746	880768	46	2. 9
90	880812	880834	880856	880877	880899	880921	880943	880965	880987	881009	881030	45	3. 13
52	881074	881096	881118	881140	881161	881183	881205	881227	881249	881271	881293	44	4. 17
14	881336	881358	881380	881402	881424	881446	881467	881489	881511	881533	881555	43	1° = 4
77	881598	881620	881642	881664	881686	881708	881729	881751	881773	881795	881817	42	2. 9
39	881860	881882	881904	881926	881948	881970	881992	882013	882035	882057	882079	41	3. 13
01	882123	882144	882166	882188	882210	882232	882254	882275	882297	882319	882341	40	4. 17
63	882385	882406	882428	882450	882472	882494	882516	882537	882559	882581	882603	39	1° = 4
25	882647	882668	882690	882712	882734	882756	882777	882799	882821	882843	882865	38	2. 9
87	882908	882930	882952	882974	882996	883018	883039	883061	883083	883105	883127	37	3. 13
48	883170	883192	883214	883236	883258	883279	883301	883323	883345	883367	883389	36	4. 17
10	883432	883454	883476	883498	883519	883541	883563	883585	883607	883629	883650	35	1° = 4
72	883694	883716	883738	883759	883781	883803	883825	883847	883868	883890	883912	34	2. 9
34	883956	883978	883999	884021	884043	884065	884087	884108	884130	884152	884174	33	3. 13
96	884217	884239	884261	884283	884305	884326	884348	884370	884392	884414	884435	32	4. 17
57	884479	884501	884523	884545	884566	884588	884610	884632	884654	884675	884697	31	1° = 4
19	884741	884763	884784	884806	884828	884850	884872	884893	884915	884937	884959	30	2. 9
81	885002	885024	885046	885068	885090	885111	885133	885155	885177	885198	885220	29	3. 13
42	885264	885286	885307	885329	885351	885373	885395	885416	885438	885460	885482	28	4. 17
04	885525	885547	885569	885591	885613	885634	885656	885678	885700	885721	885743	27	1° = 4
65	885787	885809	885830	885852	885874	885896	885918	885939	885961	885983	886005	26	2. 9
26	886048	886070	886092	886114	886135	886157	886179	886201	886223	886244	886266	25	3. 13
88	886310	886331	886353	886375	886397	886419	886440	886462	886484	886506	886527	24	4. 17
49	886571	886593	886615	886636	886658	886680	886702	886723	886745	886767	886789	23	1° = 4
11	886832	886854	886876	886898	886919	886941	886963	886985	887007	887028	887050	22	2. 9
72	887094	887115	887137	887159	887181	887202	887224	887246	887268	887290	887311	21	3. 13
33	887355	887377	887398	887420	887442	887464	887485	887507	887529	887551	887572	20	4. 17
94	887616	887638	887660	887681	887703	887725	887747	887768	887790	887812	887834	19	1° = 4
55	887877	887899	887921	887942	887964	887986	888008	888029	888051	888073	888095	18	2. 9
17	888138	888160	888182	888204	888225	888247	888269	888291	888312	888334	888356	17	3. 13
78	888399	888421	888443	888465	888486	888508	888530	888552	888573	888595	888617	16	4. 17
39	888660	888682	888704	888726	888747	888769	888791	888813	888834	888856	888878	15	1° = 4
00	888921	888943	888965	888987	889008	889030	889052	889074	889095	889117	889139	14	2. 9
51	889182	889204	889226	889248	889269	889291	889313	889335	889356	889378	889400	13	3. 13
11	889443	889465	889487	889508	889530	889552	889574	889595	889617	889639	889661	12	4. 17
72	889704	889726	889748	889769	889791	889813	889835	889856	889878	889900	889921	11	1° = 4
33	889965	889987	890008	890030	890052	890074	890095	890117	890139	890161	890182	10	2. 9
94	890226	890247	890269	890291	890313	890334	890356	890378	890400	890421	890443	9	3. 13
55	890486	890508	890530	890552	890573	890595	890617	890639	890660	890682	890704	8	4. 17
15	890747	890769	890791	890812	890834	890856	890878	890899	890921	890943	890964	7	1° = 4
76	891008	891030	891051	891073	891095	891117	891138	891160	891182	891203	891225	6	2. 9
37	891269	891290	891312	891334	891355	891377	891399	891421	891442	891464	891486	5	3. 13
97	891529	891551	891573	891594	891616	891638	891659	891681	891703	891725	891746	4	4. 17
58	891790	891811	891833	891855	891877	891898	891920	891942	891963	891985	892007	3	1° = 4
19	892050	892072	892094	892115	892137	892159	892180	892202	892224	892246	892267	2	2. 9
79	892311	892332	892354	892376	892398	892419	892441	892463	892484	892506	892528	1	3. 13
39	892571	892593	892615	892636	892658	892680	892701	892723	892745	892766	892788	0	4. 17
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°		Minute	Proport. parts.
Co-tangent of 52 degrees, or Tangent of 142 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 38 degrees, or Co-tangent of 128 degrees.														Minutes	Propor. parts.
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
0	9.892810	892832	892853	892875	892897	892918	892940	892962	892983	893005	893027	893049	59	1 = 4	
1	9.893070	893092	893114	893135	893157	893179	893200	893222	893244	893266	893287	893309	58	2. 9	
2	9.893331	893352	893374	893396	893417	893439	893461	893482	893504	893526	893548	893569	57	3. 13	
3	9.893591	893613	893634	893656	893678	893699	893721	893743	893764	893786	893808	893829	56	4. 17	
4	9.893851	893873	893895	893916	893938	893960	893981	894003	894025	894046	894068	894090	55	1 = 4	
5	9.894111	894133	894155	894176	894198	894220	894242	894263	894285	894307	894328	894350	54	2. 9	
6	9.894372	894393	894415	894437	894458	894480	894502	894523	894545	894567	894588	894610	53	3. 13	
7	9.894632	894653	894675	894697	894718	894740	894762	894783	894805	894827	894849	894870	52	4. 17	
8	9.894892	894914	894935	894957	894979	895000	895022	895044	895065	895087	895109	895130	51	1 = 4	
9	9.895152	895174	895195	895217	895239	895260	895282	895304	895325	895347	895369	895390	50	2. 9	
10	9.895412	895434	895455	895477	895499	895520	895542	895564	895585	895607	895629	895650	49	3. 13	
11	9.895672	895694	895715	895737	895759	895780	895802	895824	895845	895867	895889	895910	48	4. 17	
12	9.895932	895954	895975	895997	896019	896040	896062	896084	896105	896127	896149	896170	47	1 = 4	
13	9.896192	896214	896235	896257	896279	896300	896322	896344	896365	896387	896408	896430	46	2. 9	
14	9.896452	896473	896495	896517	896538	896560	896582	896603	896625	896647	896668	896690	45	3. 13	
15	9.896712	896733	896755	896777	896798	896820	896842	896863	896885	896907	896928	896950	44	4. 17	
16	9.896971	896993	897015	897036	897058	897080	897101	897123	897145	897166	897188	897210	43	1 = 4	
17	9.897231	897253	897275	897296	897318	897339	897361	897383	897404	897426	897448	897469	42	2. 9	
18	9.897491	897513	897534	897556	897578	897599	897621	897643	897664	897686	897707	897729	41	3. 13	
19	9.897751	897772	897794	897816	897837	897859	897881	897902	897924	897945	897967	897989	40	4. 17	
20	9.898010	898032	898054	898075	898097	898119	898140	898162	898184	898205	898227	898248	39	1 = 4	
21	9.898270	898292	898313	898335	898357	898378	898400	898421	898443	898465	898486	898508	38	2. 9	
22	9.898530	898551	898573	898595	898616	898638	898659	898681	898703	898724	898746	898768	37	3. 13	
23	9.898789	898811	898832	898854	898876	898897	898919	898941	898962	898984	899006	899027	36	4. 17	
24	9.899049	899070	899092	899114	899135	899157	899179	899200	899222	899243	899265	899287	35	1 = 4	
25	9.899308	899330	899352	899373	899395	899416	899438	899460	899481	899503	899524	899546	34	2. 9	
26	9.899568	899589	899611	899633	899654	899676	899697	899719	899741	899762	899784	899806	33	3. 13	
27	9.899827	899849	899870	899892	899914	899935	899957	899978	900000	900022	900043	900065	32	4. 17	
28	9.900087	900108	900130	900151	900173	900195	900216	900238	900259	900281	900303	900324	31	1 = 4	
29	9.900346	900368	900389	900411	900432	900454	900476	900497	900519	900540	900562	900584	30	2. 9	
30	9.900605	900627	900648	900670	900692	900713	900735	900757	900778	900800	900821	900843	29	3. 13	
31	9.900865	900886	900908	900929	900951	900973	900994	901016	901037	901059	901081	901103	28	4. 17	
32	9.901124	901145	901167	901189	901210	901232	901253	901275	901297	901318	901340	901361	27	1 = 4	
33	9.901383	901405	901426	901448	901469	901491	901513	901534	901556	901577	901599	901621	26	2. 9	
34	9.901642	901664	901685	901707	901729	901750	901772	901793	901815	901837	901858	901880	25	3. 13	
35	9.901901	901923	901945	901966	901988	902009	902031	902053	902074	902096	902117	902139	24	4. 17	
36	9.902160	902182	902204	902225	902247	902268	902290	902312	902333	902355	902376	902398	23	1 = 4	
37	9.902420	902441	902463	902484	902506	902527	902549	902571	902592	902614	902635	902657	22	2. 9	
38	9.902679	902700	902722	902743	902765	902787	902808	902830	902851	902873	902894	902916	21	3. 13	
39	9.902938	902959	902981	903002	903024	903046	903067	903089	903110	903132	903153	903175	20	4. 17	
40	9.903197	903218	903240	903261	903283	903305	903326	903348	903369	903391	903412	903434	19	1 = 4	
41	9.903456	903477	903499	903520	903542	903563	903585	903607	903628	903650	903671	903693	18	2. 9	
42	9.903714	903736	903758	903779	903801	903822	903844	903865	903887	903909	903930	903952	17	3. 13	
43	9.903973	903995	904016	904038	904060	904081	904103	904124	904146	904167	904189	904211	16	4. 17	
44	9.904232	904254	904275	904297	904318	904340	904362	904383	904405	904426	904448	904469	15	1 = 4	
45	9.904491	904513	904534	904556	904577	904599	904620	904642	904664	904685	904707	904728	14	2. 9	
46	9.904750	904771	904793	904814	904836	904858	904879	904901	904922	904944	904965	904987	13	3. 13	
47	9.905009	905030	905052	905073	905095	905116	905138	905159	905181	905203	905224	905246	12	4. 17	
48	9.905267	905289	905310	905332	905353	905375	905397	905418	905440	905461	905483	905504	11	1 = 4	
49	9.905526	905547	905569	905591	905612	905634	905655	905677	905698	905720	905741	905763	10	2. 9	
50	9.905785	905806	905828	905849	905871	905892	905914	905935	905957	905979	906000	906022	9	3. 13	
51	9.906043	906065	906086	906108	906129	906151	906172	906194	906216	906237	906259	906280	8	4. 17	
52	9.906302	906323	906345	906366	906388	906410	906431	906453	906474	906496	906517	906539	7	1 = 4	
53	9.906560	906582	906603	906625	906646	906668	906690	906711	906733	906754	906776	906797	6	2. 9	
54	9.906819	906840	906862	906883	906905	906927	906948	906970	906991	907013	907034	907056	5	3. 13	
55	9.907077	907099	907120	907142	907163	907185	907207	907228	907250	907271	907293	907314	4	4. 17	
56	9.907336	907357	907379	907400	907422	907443	907465	907487	907508	907530	907551	907573	3	1 = 4	
57	9.907594	907616	907637	907659	907680	907702	907723	907745	907766	907788	907810	907831	2	2. 9	
58	9.907853	907874	907896	907917	907939	907960	907982	908003	908025	908046	908068	908089	1	3. 13	
59	9.908111	908132	908154	908176	908197	908219	908240	908262	908283	908305	908326	908348	0	4. 17	
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'														Minutes	Propor. parts.
Co-tangent of 51 degrees, or Tangent of 141 degrees.															

LOGARITHMIC TANGENTS.

Tangent of 39 degrees, or Co-tangent of 129 degrees.											Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
69	908391	908412	908434	908455	908477	908498	908520	908541	908563	908585	59	1" = 4
28	908649	908671	908692	908714	908735	908757	908778	908800	908821	908843	58	2. 9
86	908907	908929	908950	908972	908993	909015	909036	909058	909079	909101	57	3. 13
44	909166	909187	909209	909230	909252	909273	909295	909316	909338	909359	56	4. 17
02	909424	909445	909467	909488	909510	909531	909553	909574	909596	909617	55	1" = 4
60	909682	909703	909725	909746	909768	909789	909811	909832	909854	909876	54	2. 9
19	909940	909962	909983	910005	910026	910048	910069	910091	910112	910134	53	3. 13
77	910198	910220	910241	910263	910284	910306	910327	910349	910370	910392	52	4. 17
35	910456	910478	910499	910521	910542	910564	910585	910607	910628	910650	51	1" = 4
93	910714	910736	910757	910779	910800	910822	910843	910865	910886	910908	50	2. 9
51	910972	910994	911015	911037	911058	911080	911101	911123	911144	911166	49	3. 13
09	911230	911252	911273	911295	911316	911338	911359	911381	911402	911424	48	4. 17
67	911488	911510	911531	911553	911574	911596	911617	911639	911660	911682	47	1" = 4
25	911746	911768	911789	911811	911832	911854	911875	911897	911918	911939	46	2. 9
82	912004	912025	912047	912068	912090	912111	912133	912154	912176	912197	45	3. 13
40	912262	912283	912305	912326	912348	912369	912391	912412	912434	912455	44	4. 17
98	912520	912541	912563	912584	912606	912627	912649	912670	912691	912713	43	1" = 4
56	912777	912799	912820	912842	912863	912885	912906	912928	912949	912971	42	2. 9
14	913035	913057	913078	913100	913121	913143	913164	913186	913207	913228	41	3. 13
71	913293	913314	913336	913357	913379	913400	913422	913443	913465	913486	40	4. 17
29	913551	913572	913594	913615	913637	913658	913679	913701	913722	913744	39	1" = 4
87	913808	913830	913851	913873	913894	913916	913937	913959	913980	914002	38	2. 9
44	914066	914087	914109	914130	914152	914173	914195	914216	914238	914259	37	3. 13
02	914324	914345	914366	914388	914409	914431	914452	914474	914495	914517	36	4. 17
60	914581	914603	914624	914645	914667	914688	914710	914731	914753	914774	35	1" = 4
17	914839	914860	914882	914903	914925	914946	914967	914989	915010	915032	34	2. 9
75	915096	915118	915139	915161	915182	915203	915225	915246	915268	915289	33	3. 13
32	915354	915375	915397	915418	915439	915461	915482	915504	915525	915547	32	4. 17
90	915611	915633	915654	915675	915697	915718	915740	915761	915783	915804	31	1" = 4
47	915869	915890	915911	915933	915954	915976	915997	916019	916040	916062	30	2. 9
05	916126	916147	916169	916190	916212	916233	916255	916276	916298	916319	29	3. 13
62	916383	916405	916426	916448	916469	916491	916512	916533	916555	916576	28	4. 17
19	916641	916662	916684	916705	916726	916748	916769	916791	916812	916834	27	1" = 4
77	916898	916919	916941	916962	916984	917005	917027	917048	917070	917091	26	2. 9
34	917155	917177	917198	917220	917241	917262	917284	917305	917327	917348	25	3. 13
91	917413	917434	917455	917477	917498	917520	917541	917563	917584	917605	24	4. 17
48	917670	917691	917713	917734	917756	917777	917798	917820	917841	917863	23	1" = 4
06	917927	917948	917970	917991	918013	918034	918056	918077	918098	918120	22	2. 9
63	918184	918206	918227	918248	918270	918291	918313	918334	918356	918377	21	3. 13
20	918441	918463	918484	918506	918527	918548	918570	918591	918613	918634	20	4. 17
77	918698	918720	918741	918763	918784	918806	918827	918848	918870	918891	19	1" = 4
34	918956	918977	918998	919020	919041	919063	919084	919105	919127	919148	18	2. 9
91	919218	919239	919261	919282	919304	919325	919347	919368	919389	919411	17	3. 13
48	919470	919491	919512	919534	919555	919577	919598	919620	919641	919663	16	4. 17
05	919727	919748	919769	919791	919812	919834	919855	919877	919898	919919	15	1" = 4
62	919984	920005	920026	920048	920069	920091	920112	920133	920155	920176	14	2. 9
19	920241	920262	920283	920305	920326	920348	920369	920390	920412	920433	13	3. 13
76	920497	920519	920540	920562	920583	920604	920626	920647	920669	920690	12	4. 17
33	920754	920776	920797	920819	920840	920861	920883	920904	920926	920947	11	1" = 4
90	921011	921033	921054	921075	921097	921118	921140	921161	921182	921204	10	2. 9
47	921268	921289	921311	921332	921354	921375	921396	921418	921439	921461	9	3. 13
03	921525	921546	921568	921589	921610	921632	921653	921675	921696	921717	8	4. 17
60	921782	921803	921824	921846	921867	921889	921910	921931	921953	921974	7	1" = 4
17	922038	922060	922081	922103	922124	922145	922167	922188	922210	922231	6	2. 9
74	922295	922317	922338	922359	922381	922402	922423	922445	922466	922488	5	3. 13
30	922552	922573	922595	922616	922637	922659	922680	922702	922723	922744	4	4. 17
87	922809	922830	922851	922873	922894	922915	922937	922958	922980	923001	3	1" = 4
44	923065	923087	923108	923129	923151	923172	923193	923215	923236	923258	2	2. 9
00	923322	923343	923365	923386	923407	923429	923450	923471	923493	923514	1	3. 13
57	923578	923600	923621	923643	923664	923685	923707	923728	923749	923771	0	4. 17
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-tangent of 50 degrees, or Tangent of 140 degrees.											Minutes	Proport. parts.

LOGARITHMIC TANGENTS.

Minutes	Tangent of 40 degrees, or Co-tangent of 130 degrees.												Minutes	Prop.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	9.923814	9.923835	9.923856	9.923878	9.923899	9.923920	9.923942	9.923963	9.923985	9.924006	9.924027	9.924049	59	1 =
1	9.924070	9.924092	9.924113	9.924134	9.924156	9.924177	9.924198	9.924220	9.924241	9.924263	9.924284	9.924305	58	2 =
2	9.924327	9.924348	9.924369	9.924391	9.924412	9.924434	9.924455	9.924476	9.924498	9.924519	9.924540	9.924562	57	3 =
3	9.924583	9.924605	9.924626	9.924647	9.924669	9.924690	9.924711	9.924733	9.924754	9.924775	9.924797	9.924818	56	4 =
4	9.924840	9.924861	9.924882	9.924904	9.924925	9.924946	9.924968	9.924989	9.925011	9.925032	9.925053	9.925075	55	1 =
5	9.925096	9.925117	9.925139	9.925160	9.925182	9.925203	9.925224	9.925246	9.925267	9.925288	9.925310	9.925331	54	2 =
6	9.925352	9.925374	9.925395	9.925417	9.925438	9.925459	9.925481	9.925502	9.925523	9.925545	9.925566	9.925587	53	3 =
7	9.925609	9.925630	9.925652	9.925673	9.925694	9.925716	9.925737	9.925758	9.925780	9.925801	9.925823	9.925844	52	4 =
8	9.925865	9.925887	9.925908	9.925929	9.925951	9.925972	9.925993	9.926015	9.926036	9.926057	9.926079	9.926100	51	1 =
9	9.926122	9.926143	9.926164	9.926186	9.926207	9.926228	9.926250	9.926271	9.926292	9.926314	9.926335	9.926357	50	2 =
10	9.926378	9.926399	9.926421	9.926442	9.926463	9.926485	9.926506	9.926527	9.926549	9.926570	9.926591	9.926613	49	3 =
11	9.926634	9.926656	9.926677	9.926698	9.926720	9.926741	9.926763	9.926784	9.926805	9.926826	9.926848	9.926869	48	4 =
12	9.926890	9.926912	9.926933	9.926954	9.926976	9.926997	9.927019	9.927040	9.927061	9.927083	9.927104	9.927125	47	1 =
13	9.927147	9.927168	9.927189	9.927211	9.927232	9.927253	9.927275	9.927296	9.927317	9.927339	9.927360	9.927382	46	2 =
14	9.927403	9.927424	9.927446	9.927467	9.927488	9.927510	9.927531	9.927552	9.927574	9.927595	9.927616	9.927638	45	3 =
15	9.927659	9.927680	9.927702	9.927723	9.927744	9.927766	9.927787	9.927809	9.927830	9.927851	9.927873	9.927894	44	4 =
16	9.927915	9.927937	9.927958	9.927979	9.928001	9.928022	9.928043	9.928065	9.928086	9.928107	9.928129	9.928150	43	1 =
17	9.928171	9.928193	9.928214	9.928235	9.928257	9.928278	9.928299	9.928321	9.928342	9.928363	9.928385	9.928406	42	2 =
18	9.928427	9.928449	9.928470	9.928492	9.928513	9.928534	9.928556	9.928577	9.928598	9.928620	9.928641	9.928662	41	3 =
19	9.928684	9.928705	9.928726	9.928748	9.928769	9.928790	9.928812	9.928833	9.928854	9.928876	9.928897	9.928918	40	4 =
20	9.928940	9.928961	9.928982	9.929004	9.929025	9.929046	9.929068	9.929089	9.929110	9.929132	9.929153	9.929174	39	1 =
21	9.929196	9.929217	9.929238	9.929260	9.929281	9.929302	9.929324	9.929345	9.929366	9.929388	9.929409	9.929430	38	2 =
22	9.929452	9.929473	9.929494	9.929516	9.929537	9.929558	9.929580	9.929601	9.929622	9.929644	9.929665	9.929686	37	3 =
23	9.929708	9.929729	9.929750	9.929772	9.929793	9.929814	9.929836	9.929857	9.929878	9.929900	9.929921	9.929942	36	4 =
24	9.929964	9.929985	9.930006	9.930028	9.930049	9.930070	9.930092	9.930113	9.930134	9.930156	9.930177	9.930198	35	1 =
25	9.930220	9.930241	9.930262	9.930284	9.930305	9.930326	9.930348	9.930369	9.930390	9.930412	9.930433	9.930454	34	2 =
26	9.930476	9.930497	9.930518	9.930539	9.930561	9.930582	9.930603	9.930625	9.930646	9.930667	9.930689	9.930710	33	3 =
27	9.930731	9.930753	9.930774	9.930795	9.930817	9.930838	9.930859	9.930881	9.930902	9.930923	9.930945	9.930966	32	4 =
28	9.930987	9.931009	9.931030	9.931051	9.931073	9.931094	9.931115	9.931137	9.931158	9.931179	9.931200	9.931222	31	1 =
29	9.931243	9.931264	9.931286	9.931307	9.931328	9.931350	9.931371	9.931392	9.931414	9.931435	9.931456	9.931478	30	2 =
30	9.931499	9.931520	9.931542	9.931563	9.931584	9.931606	9.931627	9.931648	9.931669	9.931691	9.931712	9.931733	29	3 =
31	9.931755	9.931776	9.931797	9.931819	9.931840	9.931861	9.931883	9.931904	9.931925	9.931947	9.931968	9.931989	28	4 =
32	9.932011	9.932032	9.932053	9.932074	9.932096	9.932117	9.932138	9.932160	9.932181	9.932202	9.932224	9.932245	27	1 =
33	9.932266	9.932288	9.932309	9.932330	9.932352	9.932373	9.932394	9.932415	9.932437	9.932458	9.932479	9.932501	26	2 =
34	9.932522	9.932543	9.932565	9.932586	9.932607	9.932629	9.932650	9.932671	9.932692	9.932714	9.932735	9.932756	25	3 =
35	9.932778	9.932799	9.932820	9.932842	9.932863	9.932884	9.932906	9.932927	9.932948	9.932969	9.932991	9.933012	24	4 =
36	9.933033	9.933055	9.933076	9.933097	9.933119	9.933140	9.933161	9.933183	9.933204	9.933225	9.933246	9.933268	23	1 =
37	9.933289	9.933310	9.933332	9.933353	9.933374	9.933396	9.933417	9.933438	9.933459	9.933481	9.933502	9.933523	22	2 =
38	9.933545	9.933566	9.933587	9.933609	9.933630	9.933651	9.933673	9.933694	9.933715	9.933737	9.933758	9.933779	21	3 =
39	9.933800	9.933822	9.933843	9.933864	9.933886	9.933907	9.933928	9.933949	9.933971	9.933992	9.934013	9.934035	20	4 =
40	9.934056	9.934077	9.934099	9.934120	9.934141	9.934162	9.934184	9.934205	9.934226	9.934248	9.934269	9.934290	19	1 =
41	9.934311	9.934333	9.934354	9.934375	9.934397	9.934418	9.934439	9.934461	9.934482	9.934503	9.934524	9.934546	18	2 =
42	9.934567	9.934588	9.934610	9.934631	9.934652	9.934673	9.934695	9.934716	9.934737	9.934759	9.934780	9.934801	17	3 =
43	9.934823	9.934844	9.934865	9.934886	9.934908	9.934929	9.934950	9.934972	9.934993	9.935014	9.935035	9.935057	16	4 =
44	9.935078	9.935099	9.935121	9.935142	9.935163	9.935184	9.935206	9.935227	9.935248	9.935270	9.935291	9.935312	15	1 =
45	9.935334	9.935355	9.935376	9.935397	9.935419	9.935440	9.935461	9.935483	9.935504	9.935525	9.935546	9.935568	14	2 =
46	9.935589	9.935610	9.935632	9.935653	9.935674	9.935695	9.935717	9.935738	9.935759	9.935781	9.935802	9.935823	13	3 =
47	9.935844	9.935866	9.935887	9.935908	9.935930	9.935951	9.935972	9.935993	9.936015	9.936036	9.936057	9.936079	12	4 =
48	9.936100	9.936121	9.936142	9.936164	9.936185	9.936206	9.936228	9.936249	9.936270	9.936291	9.936313	9.936334	11	1 =
49	9.936355	9.936377	9.936398	9.936419	9.936440	9.936462	9.936483	9.936504	9.936525	9.936547	9.936568	9.936589	10	2 =
50	9.936611	9.936632	9.936653	9.936674	9.936696	9.936717	9.936738	9.936760	9.936781	9.936802	9.936823	9.936845	9	3 =
51	9.936866	9.936887	9.936908	9.936930	9.936951	9.936972	9.936994	9.937015	9.937036	9.937057	9.937079	9.937100	8	4 =
52	9.937121	9.937143	9.937164	9.937185	9.937206	9.937228	9.937249	9.937270	9.937291	9.937313	9.937334	9.937355	7	1 =
53	9.937377	9.937398	9.937419	9.937440	9.937462	9.937483	9.937504	9.937525	9.937547	9.937568	9.937589	9.937611	6	2 =
54	9.937632	9.937653	9.937674	9.937696	9.937717	9.937738	9.937759	9.937781	9.937802	9.937823	9.937845	9.937866	5	3 =
55	9.937887	9.937908	9.937930	9.937951	9.937972	9.937993	9.938015	9.938036	9.938057	9.938079	9.938100	9.938121	4	4 =
56	9.938142	9.938164	9.938185	9.938206	9.938227	9.938249	9.938270	9.938291	9.938313	9.938334	9.938355	9.938376	3	1 =
57	9.938398	9.938419	9.938440	9.938461	9.938483	9.938504	9.938525	9.938546	9.938568	9.938589	9.938610	9.938632	2	2 =
58	9.938653	9.938674	9.938695	9.938717	9.938738	9.938759	9.938780	9.938802	9.938823	9.938844	9.938865	9.938887	1	3 =
59	9.938908	9.938929	9.938950	9.938972	9.938993	9.939014	9.939036	9.939057	9.939078	9.939099	9.939121	9.939142	0	4 =
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Prop.
Co-tangent of 49 degrees, or Tangent of 139 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 41 degrees, or Co-tangent of 131 degrees.													Minutes	Proport. parts.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	9.939163	9.939184	9.939206	9.939227	9.939248	9.939269	9.939291	9.939312	9.939333	9.939354	9.939376	9.939397	59	1" = 4
1	9.939418	9.939439	9.939461	9.939482	9.939503	9.939525	9.939546	9.939567	9.939588	9.939610	9.939631	9.939652	58	2. 9
2	9.939673	9.939695	9.939716	9.939737	9.939758	9.939780	9.939801	9.939822	9.939843	9.939865	9.939886	9.939907	57	3. 13
3	9.939928	9.939950	9.939971	9.939992	9.940013	9.940035	9.940056	9.940077	9.940098	9.940120	9.940141	9.940162	56	4. 17
4	9.940184	9.940205	9.940226	9.940247	9.940269	9.940290	9.940311	9.940332	9.940354	9.940375	9.940396	9.940417	55	1 = 4
5	9.940439	9.940460	9.940481	9.940502	9.940524	9.940545	9.940566	9.940588	9.940609	9.940630	9.940651	9.940672	54	2. 9
6	9.940694	9.940715	9.940736	9.940757	9.940779	9.940800	9.940821	9.940842	9.940864	9.940885	9.940906	9.940927	53	3. 13
7	9.940949	9.940970	9.940991	9.941012	9.941034	9.941055	9.941076	9.941097	9.941119	9.941140	9.941161	9.941182	52	4. 17
8	9.941204	9.941225	9.941246	9.941267	9.941289	9.941310	9.941331	9.941352	9.941374	9.941395	9.941416	9.941437	51	1 = 4
9	9.941459	9.941480	9.941501	9.941522	9.941544	9.941565	9.941586	9.941607	9.941629	9.941650	9.941671	9.941692	50	2. 9
0	9.941714	9.941735	9.941756	9.941777	9.941799	9.941820	9.941841	9.941862	9.941883	9.941905	9.941926	9.941947	49	3. 13
1	9.941968	9.941989	9.942011	9.942032	9.942053	9.942075	9.942096	9.942117	9.942138	9.942160	9.942181	9.942202	48	4. 17
2	9.942223	9.942245	9.942266	9.942287	9.942308	9.942330	9.942351	9.942372	9.942393	9.942415	9.942436	9.942457	47	1 = 4
3	9.942478	9.942500	9.942521	9.942542	9.942563	9.942584	9.942606	9.942627	9.942648	9.942669	9.942691	9.942712	46	2. 9
4	9.942733	9.942754	9.942776	9.942797	9.942818	9.942839	9.942861	9.942882	9.942903	9.942924	9.942946	9.942967	45	3. 13
5	9.942988	9.943009	9.943030	9.943052	9.943073	9.943094	9.943115	9.943137	9.943158	9.943179	9.943200	9.943222	44	4. 17
6	9.943243	9.943264	9.943285	9.943307	9.943328	9.943349	9.943370	9.943391	9.943413	9.943434	9.943455	9.943476	43	1 = 4
7	9.943498	9.943519	9.943540	9.943561	9.943583	9.943604	9.943625	9.943646	9.943667	9.943689	9.943710	9.943731	42	2. 8
8	9.943752	9.943774	9.943795	9.943816	9.943837	9.943859	9.943880	9.943901	9.943922	9.943944	9.943965	9.943986	41	3. 13
9	9.944007	9.944028	9.944050	9.944071	9.944092	9.944113	9.944135	9.944156	9.944177	9.944198	9.944219	9.944241	40	4. 17
0	9.944262	9.944283	9.944304	9.944326	9.944347	9.944368	9.944389	9.944411	9.944432	9.944453	9.944474	9.944495	39	1 = 4
1	9.944517	9.944538	9.944559	9.944580	9.944602	9.944623	9.944644	9.944665	9.944687	9.944708	9.944729	9.944750	38	2. 8
2	9.944771	9.944793	9.944814	9.944835	9.944856	9.944878	9.944899	9.944920	9.944941	9.944962	9.944984	9.945005	37	3. 13
3	9.945026	9.945047	9.945069	9.945090	9.945111	9.945132	9.945153	9.945175	9.945196	9.945217	9.945238	9.945260	36	4. 17
4	9.945281	9.945302	9.945323	9.945344	9.945366	9.945387	9.945408	9.945429	9.945451	9.945472	9.945493	9.945514	35	1 = 4
5	9.945535	9.945557	9.945578	9.945599	9.945620	9.945642	9.945663	9.945684	9.945705	9.945726	9.945748	9.945769	34	2. 8
6	9.945790	9.945811	9.945833	9.945854	9.945875	9.945896	9.945917	9.945939	9.945960	9.945981	9.946002	9.946024	33	3. 13
7	9.946045	9.946066	9.946087	9.946108	9.946130	9.946151	9.946172	9.946193	9.946214	9.946236	9.946257	9.946278	32	4. 17
8	9.946299	9.946321	9.946342	9.946363	9.946384	9.946405	9.946427	9.946448	9.946469	9.946490	9.946511	9.946533	31	1 = 4
9	9.946554	9.946575	9.946596	9.946618	9.946639	9.946660	9.946681	9.946702	9.946724	9.946745	9.946766	9.946787	30	2. 8
0	9.946808	9.946830	9.946851	9.946872	9.946893	9.946915	9.946936	9.946957	9.946978	9.946999	9.947021	9.947042	29	3. 13
1	9.947063	9.947084	9.947105	9.947127	9.947148	9.947169	9.947190	9.947212	9.947233	9.947254	9.947275	9.947296	28	4. 17
2	9.947318	9.947339	9.947360	9.947381	9.947402	9.947424	9.947445	9.947466	9.947487	9.947508	9.947530	9.947551	27	1 = 4
3	9.947572	9.947593	9.947614	9.947636	9.947657	9.947678	9.947699	9.947721	9.947742	9.947763	9.947784	9.947805	26	2. 8
4	9.947827	9.947848	9.947869	9.947890	9.947911	9.947933	9.947954	9.947975	9.947996	9.948017	9.948039	9.948060	25	3. 13
5	9.948081	9.948102	9.948123	9.948145	9.948166	9.948187	9.948208	9.948229	9.948251	9.948272	9.948293	9.948314	24	4. 17
6	9.948336	9.948357	9.948378	9.948399	9.948420	9.948442	9.948463	9.948484	9.948505	9.948526	9.948548	9.948569	23	1 = 4
7	9.948590	9.948611	9.948632	9.948654	9.948675	9.948696	9.948717	9.948738	9.948760	9.948781	9.948802	9.948823	22	2. 8
8	9.948844	9.948866	9.948887	9.948908	9.948929	9.948950	9.948972	9.948993	9.949014	9.949035	9.949056	9.949078	21	3. 13
9	9.949099	9.949120	9.949141	9.949162	9.949184	9.949205	9.949226	9.949247	9.949268	9.949290	9.949311	9.949332	20	4. 17
0	9.949353	9.949374	9.949396	9.949417	9.949438	9.949459	9.949480	9.949502	9.949523	9.949544	9.949565	9.949586	19	1 = 4
1	9.949608	9.949629	9.949650	9.949671	9.949692	9.949714	9.949735	9.949756	9.949777	9.949798	9.949820	9.949841	18	2. 8
2	9.949862	9.949883	9.949904	9.949925	9.949947	9.949968	9.949989	9.950010	9.950031	9.950053	9.950074	9.950095	17	3. 13
3	9.950116	9.950137	9.950159	9.950180	9.950201	9.950222	9.950243	9.950265	9.950286	9.950307	9.950328	9.950349	16	4. 17
4	9.950371	9.950392	9.950413	9.950434	9.950455	9.950477	9.950498	9.950519	9.950540	9.950561	9.950582	9.950604	15	1 = 4
5	9.950625	9.950646	9.950667	9.950688	9.950710	9.950731	9.950752	9.950773	9.950794	9.950816	9.950837	9.950858	14	2. 8
6	9.950879	9.950900	9.950922	9.950943	9.950964	9.950985	9.951006	9.951027	9.951049	9.951070	9.951091	9.951112	13	3. 13
7	9.951133	9.951155	9.951176	9.951197	9.951218	9.951239	9.951261	9.951282	9.951303	9.951324	9.951345	9.951367	12	4. 17
8	9.951388	9.951409	9.951430	9.951451	9.951472	9.951494	9.951515	9.951536	9.951557	9.951578	9.951600	9.951621	11	1 = 4
9	9.951642	9.951663	9.951684	9.951705	9.951727	9.951748	9.951769	9.951790	9.951811	9.951833	9.951854	9.951875	10	2. 8
0	9.951896	9.951917	9.951939	9.951960	9.951981	9.952002	9.952023	9.952044	9.952066	9.952087	9.952108	9.952129	9	3. 13
1	9.952150	9.952172	9.952193	9.952214	9.952235	9.952256	9.952277	9.952299	9.952320	9.952341	9.952362	9.952383	8	4. 17
2	9.952405	9.952426	9.952447	9.952468	9.952489	9.952510	9.952532	9.952553	9.952574	9.952595	9.952616	9.952638	7	1 = 4
3	9.952659	9.952680	9.952701	9.952722	9.952743	9.952765	9.952786	9.952807	9.952828	9.952849	9.952871	9.952892	6	2. 8
4	9.952913	9.952934	9.952955	9.952976	9.952998	9.953019	9.953040	9.953061	9.953082	9.953103	9.953125	9.953146	5	3. 13
5	9.953167	9.953188	9.953209	9.953231	9.953252	9.953273	9.953294	9.953315	9.953336	9.953358	9.953379	9.953400	4	4. 17
6	9.953421	9.953442	9.953463	9.953485	9.953506	9.953527	9.953548	9.953569	9.953591	9.953612	9.953633	9.953654	3	1 = 4
7	9.953675	9.953696	9.953718	9.953739	9.953760	9.953781	9.953802	9.953823	9.953845	9.953866	9.953887	9.953908	2	2. 8
8	9.953929	9.953951	9.953972	9.953993	9.954014	9.954035	9.954056	9.954078	9.954099	9.954120	9.954141	9.954162	1	3. 13
9	9.954183	9.954205	9.954226	9.954247	9.954268	9.954289	9.954310	9.954332	9.954353	9.954374	9.954395	9.954416	0	4. 17
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-tangent of 48 degrees, or Tangent of 138 degrees.														

LOGARITHMIC TANGENTS.

Minutes	Tangent of 42 degrees, or Co-tangent of 132 degrees.												Minutes	Propaganda
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	9.954437	954459	954480	954501	954522	954543	954565	954586	954607	954628	954649	954670	59	1 = 4
1	9.954692	954713	954734	954755	954776	954797	954819	954840	954861	954882	954903	954924	58	2 = 4
2	9.954967	954988	955009	955030	955051	955073	955094	955115	955136	955157	955178	955199	57	3 = 4
3	9.955200	955221	955242	955263	955284	955305	955327	955348	955369	955390	955411	955432	56	4 = 4
4	9.955454	955475	955496	955517	955538	955559	955581	955602	955623	955644	955665	955686	55	1 = 4
5	9.955708	955729	955750	955771	955792	955813	955835	955856	955877	955898	955919	955940	54	2 = 4
6	9.955962	955983	956004	956025	956046	956067	956089	956110	956131	956152	956173	956194	53	3 = 4
7	9.956215	956237	956258	956279	956300	956321	956342	956364	956385	956406	956427	956448	52	4 = 4
8	9.956469	956491	956512	956533	956554	956575	956596	956618	956639	956660	956681	956702	51	1 = 4
9	9.956723	956745	956766	956787	956808	956829	956850	956871	956892	956914	956935	956956	50	2 = 4
10	9.956977	956998	957020	957041	957062	957083	957104	957125	957146	957168	957189	957210	49	3 = 4
11	9.957231	957252	957273	957295	957316	957337	957358	957379	957400	957422	957443	957464	48	4 = 4
12	9.957485	957506	957527	957549	957570	957591	957612	957633	957654	957675	957697	957718	47	1 = 4
13	9.957739	957760	957781	957802	957824	957845	957866	957887	957908	957929	957950	957972	46	2 = 4
14	9.957993	958014	958035	958056	958077	958099	958120	958141	958162	958183	958204	958225	45	3 = 4
15	9.958247	958268	958289	958310	958331	958352	958374	958395	958416	958437	958458	958479	44	4 = 4
16	9.958500	958522	958543	958564	958585	958606	958627	958648	958670	958691	958712	958733	43	1 = 4
17	9.958754	958775	958797	958818	958839	958860	958881	958902	958923	958945	958966	958987	42	2 = 4
18	9.959008	959029	959050	959071	959093	959114	959135	959156	959177	959198	959220	959241	41	3 = 4
19	9.959262	959283	959304	959325	959346	959368	959389	959410	959431	959452	959473	959494	40	4 = 4
20	9.959516	959537	959558	959579	959600	959621	959642	959664	959685	959706	959727	959748	39	1 = 4
21	9.959769	959790	959812	959833	959854	959875	959896	959917	959938	959959	959980	960002	38	2 = 4
22	9.960023	960044	960065	960087	960108	960129	960150	960171	960192	960213	960235	960256	37	3 = 4
23	9.960277	960298	960319	960340	960361	960383	960404	960425	960446	960467	960488	960509	36	4 = 4
24	9.960531	960552	960573	960594	960615	960636	960657	960679	960700	960721	960742	960763	35	1 = 4
25	9.960784	960805	960826	960848	960869	960890	960911	960932	960953	960974	960996	961017	34	2 = 4
26	9.961038	961059	961080	961101	961122	961144	961165	961186	961207	961228	961249	961270	33	3 = 4
27	9.961292	961313	961334	961355	961376	961397	961418	961440	961461	961482	961503	961524	32	4 = 4
28	9.961545	961566	961588	961609	961630	961651	961672	961693	961714	961735	961757	961778	31	1 = 4
29	9.961799	961820	961841	961862	961883	961905	961926	961947	961968	961989	962010	962031	30	2 = 4
30	9.962053	962074	962095	962116	962137	962158	962179	962200	962222	962243	962264	962285	29	3 = 4
31	9.962306	962327	962348	962370	962391	962412	962433	962454	962475	962496	962517	962539	28	4 = 4
32	9.962560	962581	962602	962623	962644	962665	962687	962708	962729	962750	962771	962792	27	1 = 4
33	9.962813	962834	962855	962877	962898	962919	962940	962961	962982	963004	963025	963046	26	2 = 4
34	9.963067	963088	963109	963130	963151	963173	963194	963215	963236	963257	963278	963299	25	3 = 4
35	9.963320	963342	963363	963384	963405	963426	963447	963468	963489	963511	963532	963553	24	4 = 4
36	9.963574	963595	963616	963637	963659	963680	963701	963722	963743	963764	963785	963806	23	1 = 4
37	9.963828	963849	963870	963891	963912	963933	963954	963975	963997	964018	964039	964060	22	2 = 4
38	9.964081	964102	964123	964144	964166	964187	964208	964229	964250	964271	964292	964314	21	3 = 4
39	9.964335	964356	964377	964398	964419	964440	964461	964483	964504	964525	964546	964567	20	4 = 4
40	9.964588	964609	964630	964652	964673	964694	964715	964736	964757	964778	964799	964821	19	1 = 4
41	9.964842	964863	964884	964905	964926	964947	964968	964990	965011	965032	965053	965074	18	2 = 4
42	9.965095	965116	965137	965159	965180	965201	965222	965243	965264	965285	965306	965327	17	3 = 4
43	9.965349	965370	965391	965412	965433	965454	965475	965496	965518	965539	965560	965581	16	4 = 4
44	9.965602	965623	965644	965665	965687	965708	965729	965750	965771	965792	965813	965834	15	1 = 4
45	9.965856	965877	965898	965919	965940	965961	965982	966003	966024	966046	966067	966088	14	2 = 4
46	9.966109	966130	966151	966172	966193	966215	966236	966257	966278	966299	966320	966341	13	3 = 4
47	9.966362	966384	966405	966426	966447	966468	966489	966510	966531	966552	966574	966595	12	4 = 4
48	9.966616	966637	966658	966679	966700	966721	966743	966764	966785	966806	966827	966848	11	1 = 4
49	9.966869	966890	966911	966933	966954	966975	966996	967017	967038	967059	967080	967101	10	2 = 4
50	9.967123	967144	967165	967186	967207	967228	967249	967270	967292	967313	967334	967355	9	3 = 4
51	9.967376	967397	967418	967439	967460	967482	967503	967524	967545	967566	967587	967608	8	4 = 4
52	9.967629	967650	967672	967693	967714	967735	967756	967777	967798	967819	967840	967862	7	1 = 4
53	9.967883	967904	967925	967946	967967	967988	968009	968030	968052	968073	968094	968115	6	2 = 4
54	9.968136	968157	968178	968199	968220	968242	968263	968284	968305	968326	968347	968368	5	3 = 4
55	9.968389	968411	968432	968453	968474	968495	968516	968537	968558	968579	968600	968622	4	4 = 4
56	9.968643	968664	968685	968706	968727	968748	968769	968790	968812	968833	968854	968875	3	1 = 4
57	9.968896	968917	968938	968959	968980	969002	969023	969044	969065	969086	969107	969128	2	2 = 4
58	9.969149	969170	969192	969213	969234	969255	969276	969297	969318	969339	969360	969382	1	3 = 4
59	9.969403	969424	969445	969466	969487	969508	969529	969550	969571	969593	969614	969635	0	4 = 4
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Propaganda
Co-tangent of 47 degrees, or Tangent of 137 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 43 degrees, or Co-tangent of 133 degrees.												Minutes	Proport. parts.
1'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
9656	96677	96698	96719	96740	96761	96783	96804	96825	96846	96867	96888	59	1" = 4
9909	969930	969951	969973	969994	970015	970036	970057	970078	970099	970120	970141	58	2. 8
0162	970184	970205	970226	970247	970268	970289	970310	970331	970352	970374	970395	57	3. 13
0416	970437	970458	970479	970500	970521	970542	970563	970585	970606	970627	970648	56	4. 17
0669	970690	970711	970732	970753	970774	970796	970817	970838	970859	970880	970901	55	1 = 4
0922	970943	970964	970985	971007	971028	971049	971070	971091	971112	971133	971154	54	2. 8
1175	971197	971218	971239	971260	971281	971302	971323	971344	971365	971386	971408	53	3. 13
1429	971450	971471	971492	971513	971534	971555	971576	971597	971619	971640	971661	52	4. 17
1682	971703	971724	971745	971766	971787	971808	971830	971851	971872	971893	971914	51	1 = 4
1935	971956	971977	971998	972019	972041	972062	972083	972104	972125	972146	972167	50	2. 8
2188	972209	972230	972252	972273	972294	972315	972336	972357	972378	972399	972420	49	3. 13
2441	972462	972484	972505	972526	972547	972568	972589	972610	972631	972652	972673	48	4. 17
2695	972716	972737	972758	972779	972800	972821	972842	972863	972884	972906	972927	47	1 = 4
2948	972969	972990	973011	973032	973053	973074	973095	973116	973138	973159	973180	46	2. 8
3201	973222	973243	973264	973285	973306	973327	973349	973370	973391	973412	973433	45	3. 13
3454	973475	973496	973517	973538	973559	973581	973602	973623	973644	973665	973686	44	4. 17
3707	973728	973749	973770	973791	973813	973834	973855	973876	973897	973918	973939	43	1 = 4
3960	973981	974002	974024	974045	974066	974087	974108	974129	974150	974171	974192	42	2. 8
4213	974234	974256	974277	974298	974319	974340	974361	974382	974403	974424	974445	41	3. 13
4466	974488	974509	974530	974551	974572	974593	974614	974635	974656	974677	974698	40	4. 17
4720	974741	974762	974783	974804	974825	974846	974867	974888	974909	974930	974952	39	1 = 4
4973	974994	975015	975036	975057	975078	975099	975120	975141	975162	975184	975205	38	2. 8
5226	975247	975268	975289	975310	975331	975352	975373	975394	975416	975437	975458	37	3. 13
5479	975500	975521	975542	975563	975584	975605	975626	975647	975669	975690	975711	36	4. 17
5732	975753	975774	975795	975816	975837	975858	975879	975901	975922	975943	975964	35	1 = 4
5985	976006	976027	976048	976069	976090	976111	976133	976154	976175	976196	976217	34	2. 8
6238	976259	976280	976301	976322	976343	976364	976386	976407	976428	976449	976470	33	3. 13
6491	976512	976533	976554	976575	976596	976617	976639	976660	976681	976702	976723	32	4. 17
6744	976765	976786	976807	976828	976849	976871	976892	976913	976934	976955	976976	31	1 = 4
6997	977018	977039	977060	977081	977102	977124	977145	977166	977187	977208	977229	30	2. 8
7250	977271	977292	977313	977334	977355	977377	977398	977419	977440	977461	977482	29	3. 13
7503	977524	977545	977566	977587	977608	977630	977651	977672	977693	977714	977735	28	4. 17
7756	977777	977798	977819	977840	977861	977883	977904	977925	977946	977967	977988	27	1 = 4
8009	978030	978051	978072	978093	978114	978136	978157	978178	978199	978220	978241	26	2. 8
8262	978283	978304	978325	978346	978367	978389	978410	978431	978452	978473	978494	25	3. 13
8515	978536	978557	978578	978599	978620	978641	978663	978684	978705	978726	978747	24	4. 17
8768	978789	978810	978831	978852	978873	978894	978916	978937	978958	978979	979000	23	1 = 4
9021	979042	979063	979084	979105	979126	979147	979168	979190	979211	979232	979253	22	2. 8
9274	979295	979316	979337	979358	979379	979400	979421	979443	979464	979485	979506	21	3. 13
9527	979548	979569	979590	979611	979632	979653	979674	979695	979717	979738	979759	20	4. 17
9780	979801	979822	979843	979864	979885	979906	979927	979948	979969	979991	980012	19	1 = 4
1003	980054	980075	980096	980117	980138	980159	980180	980201	980222	980243	980265	18	2. 8
1286	980307	980328	980349	980370	980391	980412	980433	980454	980475	980496	980517	17	3. 13
1539	980560	980581	980602	980623	980644	980665	980686	980707	980728	980749	980770	16	4. 17
1791	980813	980834	980855	980876	980897	980918	980939	980960	980981	981002	981023	15	1 = 4
2044	981065	981087	981108	981129	981150	981171	981192	981213	981234	981255	981276	14	2. 8
2297	981318	981339	981360	981382	981403	981424	981445	981466	981487	981508	981529	13	3. 13
2550	981571	981592	981613	981634	981656	981677	981698	981719	981740	981761	981782	12	4. 17
2803	981824	981845	981866	981887	981908	981929	981951	981972	981993	982014	982035	11	1 = 4
3056	982077	982098	982119	982140	982161	982182	982203	982225	982246	982267	982288	10	2. 8
3309	982330	982351	982372	982393	982414	982435	982456	982477	982498	982520	982541	9	3. 13
3562	982583	982604	982625	982646	982667	982688	982709	982730	982751	982772	982793	8	4. 17
3815	982836	982857	982878	982899	982920	982941	982962	982983	983004	983025	983046	7	1 = 4
4067	983088	983110	983131	983152	983173	983194	983215	983236	983257	983278	983299	6	2. 8
4320	983341	983362	983383	983405	983426	983447	983468	983489	983510	983531	983552	5	3. 13
4573	983594	983615	983636	983657	983678	983700	983721	983742	983763	983784	983805	4	4. 17
4826	983847	983868	983889	983910	983931	983952	983973	983994	984016	984037	984058	3	1 = 4
5079	984100	984121	984142	984163	984184	984205	984226	984247	984268	984289	984311	2	2. 8
5332	984353	984374	984395	984416	984437	984458	984479	984500	984521	984542	984563	1	3. 13
5584	984605	984627	984648	984669	984690	984711	984732	984753	984774	984795	984816	0	4. 17
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'		Minutes	Proport. parts.
Co-tangent of 46 degrees, or Tangent of 136 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 44 degrees, or Co-tangent of 134 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proport. parts.
0	9.984837	984858	984879	984900	984922	984943	984964	984985	985006	985027	985048	985069	59	1 = 4
1	9.985090	985111	985132	985153	985174	985195	985216	985238	985259	985280	985301	985322	58	2. 8
2	9.985343	985364	985385	985406	985427	985448	985469	985490	985511	985532	985554	985575	57	3. 13
3	9.985596	985617	985638	985659	985680	985701	985722	985743	985764	985785	985806	985827	56	4. 17
4	9.985848	985870	985891	985912	985933	985954	985975	985996	986017	986038	986059	986080	55	1 = 4
5	9.986101	986122	986143	986164	986186	986207	986228	986249	986270	986291	986312	986333	54	2. 8
6	9.986354	986375	986396	986417	986438	986459	986480	986501	986523	986544	986565	986586	53	3. 13
7	9.986607	986628	986649	986670	986691	986712	986733	986754	986775	986796	986817	986838	52	4. 17
8	9.986860	986881	986902	986923	986944	986965	986986	987007	987028	987049	987070	987091	51	1 = 4
9	9.987112	987133	987155	987176	987197	987218	987239	987260	987281	987302	987323	987344	50	2. 8
10	9.987365	987386	987407	987428	987449	987470	987492	987513	987534	987555	987576	987597	49	3. 13
11	9.987618	987639	987660	987681	987702	987723	987744	987765	987786	987807	987828	987849	48	4. 17
12	9.987871	987892	987913	987934	987955	987976	987997	988018	988039	988060	988081	988102	47	1 = 4
13	9.988123	988145	988166	988187	988208	988229	988250	988271	988292	988313	988334	988355	46	2. 8
14	9.988376	988397	988418	988439	988460	988482	988503	988524	988545	988566	988587	988608	45	3. 13
15	9.988629	988650	988671	988692	988713	988734	988755	988776	988797	988819	988840	988861	44	4. 17
16	9.988882	988903	988924	988945	988966	988987	989008	989029	989050	989071	989092	989113	43	1 = 4
17	9.989134	989156	989177	989198	989219	989240	989261	989282	989303	989324	989345	989366	42	2. 8
18	9.989387	989408	989429	989450	989471	989492	989514	989535	989556	989577	989598	989619	41	3. 13
19	9.989640	989661	989682	989703	989724	989745	989766	989787	989808	989829	989850	989871	40	4. 17
20	9.989893	989914	989935	989956	989977	989998	990019	990040	990061	990082	990103	990124	39	1 = 4
21	9.990145	990166	990187	990209	990230	990251	990272	990293	990314	990335	990356	990377	38	2. 8
22	9.990398	990419	990440	990461	990482	990503	990524	990546	990567	990588	990609	990630	37	3. 13
23	9.990651	990672	990693	990714	990735	990756	990777	990798	990819	990840	990861	990882	36	4. 17
24	9.990904	990925	990946	990967	990988	991009	991030	991051	991072	991093	991114	991135	35	1 = 4
25	9.991156	991177	991198	991219	991240	991262	991283	991304	991325	991346	991367	991388	34	2. 8
26	9.991409	991430	991451	991472	991493	991514	991535	991556	991577	991598	991620	991641	33	3. 13
27	9.991662	991683	991704	991725	991746	991767	991788	991809	991830	991851	991872	991893	32	4. 17
28	9.991914	991935	991957	991978	991999	992020	992041	992062	992083	992104	992125	992146	31	1 = 4
29	9.992167	992188	992209	992230	992251	992272	992293	992315	992336	992357	992378	992399	30	2. 8
30	9.992420	992441	992462	992483	992504	992525	992546	992567	992588	992609	992630	992651	29	3. 13
31	9.992672	992694	992715	992736	992757	992778	992799	992820	992841	992862	992883	992904	28	4. 17
32	9.992925	992946	992967	992988	993009	993030	993052	993073	993094	993115	993136	993157	27	1 = 4
33	9.993178	993199	993220	993241	993262	993283	993304	993325	993346	993367	993388	993410	26	2. 8
34	9.993431	993452	993473	993494	993515	993536	993557	993578	993599	993620	993641	993662	25	3. 13
35	9.993683	993704	993725	993746	993767	993788	993810	993831	993852	993873	993894	993915	24	4. 17
36	9.993936	993957	993978	993999	994020	994041	994062	994083	994104	994125	994147	994168	23	1 = 4
37	9.994189	994210	994231	994252	994273	994294	994315	994336	994357	994378	994399	994420	22	2. 8
38	9.994441	994462	994483	994504	994526	994547	994568	994589	994610	994631	994652	994673	21	3. 13
39	9.994694	994715	994736	994757	994778	994799	994820	994841	994862	994884	994905	994926	20	4. 17
40	9.994947	994968	994989	995010	995031	995052	995073	995094	995115	995136	995157	995178	19	1 = 4
41	9.995199	995220	995241	995263	995284	995305	995326	995347	995368	995389	995410	995431	18	2. 8
42	9.995452	995473	995494	995515	995536	995557	995578	995599	995620	995642	995663	995684	17	3. 13
43	9.995705	995726	995747	995768	995789	995810	995831	995852	995873	995894	995915	995936	16	4. 17
44	9.995957	995978	995999	996021	996042	996063	996084	996105	996126	996147	996168	996189	15	1 = 4
45	9.996210	996231	996252	996273	996294	996315	996336	996357	996379	996400	996421	996442	14	2. 8
46	9.996463	996484	996505	996526	996547	996568	996589	996610	996631	996652	996673	996694	13	3. 13
47	9.996715	996736	996758	996779	996800	996821	996842	996863	996884	996905	996926	996947	12	4. 17
48	9.996968	996989	997010	997031	997052	997073	997094	997115	997137	997158	997179	997200	11	1 = 4
49	9.997221	997242	997263	997284	997305	997326	997347	997368	997389	997410	997431	997452	10	2. 8
50	9.997473	997494	997516	997537	997558	997579	997600	997621	997642	997663	997684	997705	9	3. 13
51	9.997726	997747	997768	997789	997810	997831	997852	997873	997895	997916	997937	997958	8	4. 17
52	9.997979	998000	998021	998042	998063	998084	998105	998126	998147	998168	998189	998210	7	1 = 4
53	9.998231	998252	998274	998295	998316	998337	998358	998379	998400	998421	998442	998463	6	2. 8
54	9.998484	998505	998526	998547	998568	998589	998610	998631	998653	998674	998695	998716	5	3. 13
55	9.998737	998758	998779	998800	998821	998842	998863	998884	998905	998926	998947	998968	4	4. 17
56	9.998989	999010	999032	999053	999074	999095	999116	999137	999158	999179	999200	999221	3	1 = 4
57	9.999242	999263	999284	999305	999326	999347	999368	999389	999411	999432	999453	999474	2	2. 8
58	9.999495	999516	999537	999558	999579	999600	999621	999642	999663	999684	999705	999726	1	3. 13
59	9.999747	999768	999789	999811	999832	999853	999874	999895	999916	999937	999958	999979	0	4. 17
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'														
Co-tangent of 45 degrees, or Tangent of 135 degrees.														
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.

LOGARITHMIC TANGENTS.

Tangent of 45 degrees, or Co-tangent of 135 degrees.												Minutes	Proport. parts.
1'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0000	000021	000043	000063	000084	000105	000126	000147	000168	000189	000211	000232	59	1" = 4
0253	000274	000295	000316	000337	000358	000379	000400	000421	000442	000463	000484	58	2. 8
0505	000526	000547	000568	000589	000611	000632	000653	000674	000695	000716	000737	57	3. 13
0758	000779	000800	000821	000842	000863	000884	000905	000926	000947	000968	000990	56	4. 17
1011	001032	001053	001074	001095	001116	001137	001158	001179	001200	001221	001242	55	1 = 4
1263	001284	001305	001326	001347	001369	001390	001411	001432	001453	001474	001495	54	2. 8
1516	001537	001558	001579	001600	001621	001642	001663	001684	001705	001726	001748	53	3. 13
1769	001790	001811	001832	001853	001874	001895	001916	001937	001958	001979	002000	52	4. 17
2021	002042	002063	002084	002105	002127	002148	002169	002190	002211	002232	002253	51	1 = 4
2274	002295	002316	002337	002358	002379	002400	002421	002442	002463	002484	002506	50	2. 8
2527	002548	002569	002590	002611	002632	002653	002674	002695	002716	002737	002758	49	3. 13
2779	002800	002821	002842	002863	002885	002906	002927	002948	002969	002990	003011	48	4. 17
3032	003053	003074	003095	003116	003137	003158	003179	003200	003221	003242	003264	47	1 = 4
3285	003306	003327	003348	003369	003390	003411	003432	003453	003474	003495	003516	46	2. 8
3537	003558	003579	003600	003621	003643	003664	003685	003706	003727	003748	003769	45	3. 13
3790	003811	003832	003853	003874	003895	003916	003937	003958	003979	004000	004022	44	4. 17
4043	004064	004085	004106	004127	004148	004169	004190	004211	004232	004253	004274	43	1 = 4
4295	004316	004337	004358	004379	004401	004422	004443	004464	004485	004506	004527	42	2. 8
4548	004569	004590	004611	004632	004653	004674	004695	004716	004737	004758	004780	41	3. 13
4801	004822	004843	004864	004885	004906	004927	004948	004969	004990	005011	005032	40	4. 17
5053	005074	005095	005116	005138	005159	005180	005201	005222	005243	005264	005285	39	1 = 4
5306	005327	005348	005369	005390	005411	005432	005453	005474	005496	005517	005538	38	2. 8
5559	005580	005601	005622	005643	005664	005685	005706	005727	005748	005769	005790	37	3. 13
5811	005832	005853	005875	005896	005917	005938	005959	005980	006001	006022	006043	36	4. 17
6064	006085	006106	006127	006148	006169	006190	006211	006232	006253	006274	006296	35	1 = 4
6317	006338	006359	006380	006401	006422	006443	006464	006485	006506	006527	006548	34	2. 8
6569	006590	006611	006632	006653	006674	006695	006716	006737	006758	006780	006801	33	3. 13
6822	006843	006864	006885	006906	006927	006948	006969	006990	007011	007032	007054	32	4. 17
7075	007096	007117	007138	007159	007180	007201	007222	007243	007264	007285	007306	31	1 = 4
7328	007349	007370	007391	007412	007433	007454	007475	007496	007517	007538	007559	30	2. 8
7580	007601	007622	007643	007664	007685	007707	007728	007749	007770	007791	007812	29	3. 13
7833	007854	007875	007896	007917	007938	007959	007980	008001	008022	008043	008065	28	4. 17
8086	008107	008128	008149	008170	008191	008212	008233	008254	008275	008296	008317	27	1 = 4
8338	008359	008380	008401	008423	008444	008465	008486	008507	008528	008549	008570	26	2. 8
8591	008612	008633	008654	008675	008696	008717	008738	008760	008781	008802	008823	25	3. 13
8844	008865	008886	008907	008928	008949	008970	008991	009012	009033	009054	009075	24	4. 17
9096	009118	009139	009160	009181	009202	009223	009244	009265	009286	009307	009328	23	1 = 4
9349	009370	009391	009412	009433	009454	009476	009497	009518	009539	009560	009581	22	2. 8
9602	009623	009644	009665	009686	009707	009728	009749	009770	009791	009813	009834	21	3. 13
9855	009876	009897	009918	009939	009960	009981	010002	010023	010044	010065	010086	20	4. 17
1007	010128	010149	010171	010192	010213	010234	010255	010276	010297	010318	010339	19	1 = 4
1060	010381	010402	010423	010444	010465	010486	010508	010529	010550	010571	010592	18	2. 8
1113	010634	010655	010676	010697	010718	010739	010760	010781	010802	010823	010844	17	3. 13
1166	010887	010908	010929	010950	010971	010992	011013	011034	011055	011076	011097	16	4. 17
1218	011139	011160	011181	011203	011224	011245	011266	011287	011308	011329	011350	15	1 = 4
1271	011392	011413	011434	011455	011476	011497	011518	011540	011561	011582	011603	14	2. 8
1324	011645	011666	011687	011708	011729	011750	011771	011792	011813	011834	011855	13	3. 13
1377	011898	011919	011940	011961	011982	012003	012024	012045	012066	012087	012108	12	4. 17
1429	012150	012171	012193	012214	012235	012256	012277	012298	012319	012340	012361	11	1 = 4
1482	012403	012424	012445	012466	012487	012508	012530	012551	012572	012593	012614	10	2. 8
1535	012656	012677	012698	012719	012740	012761	012782	012803	012824	012845	012866	9	3. 13
1588	012909	012930	012951	012972	012993	013014	013035	013056	013077	013098	013119	8	4. 17
1640	013161	013183	013204	013225	013246	013267	013288	013309	013330	013351	013372	7	1 = 4
1693	013414	013435	013456	013477	013499	013520	013541	013562	013583	013604	013625	6	2. 8
1746	013667	013688	013709	013730	013751	013772	013793	013814	013836	013857	013878	5	3. 13
1799	013920	013941	013962	013983	014004	014025	014046	014067	014088	014109	014130	4	4. 17
1852	014173	014194	014215	014236	014257	014278	014299	014320	014341	014362	014383	3	1 = 4
1904	014425	014446	014468	014489	014510	014531	014552	014573	014594	014615	014636	2	2. 8
1957	014678	014699	014720	014741	014762	014784	014805	014826	014847	014868	014889	1	3. 13
2010	014931	014952	014973	014994	015015	015036	015057	015078	015100	015121	015142	0	4. 17
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"		Minutes	Proport. parts.
Co-tangent of 44 degrees, or Tangent of 134 degrees.													

LOGARITHMIC TANGENTS.

Minutes	Tangent of 46 degrees, or Co-tangent of 136 degrees.												Minutes	Propor. parts.
	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
0	10.015163	015184	015205	015226	015247	015268	015289	015310	015331	015352	015373	015395	59	1 = 4
1	10.015416	015437	015458	015479	015500	015521	015542	015563	015584	015605	015626	015647	58	2 = 8
2	10.015668	015689	015711	015732	015753	015774	015795	015816	015837	015858	015879	015900	57	3 = 12
3	10.015921	015942	015963	015984	016006	016027	016048	016069	016090	016111	016132	016153	56	4 = 16
4	10.016174	016195	016216	016237	016258	016279	016300	016322	016343	016364	016385	016406	55	1 = 4
5	10.016427	016448	016469	016490	016511	016532	016553	016574	016595	016616	016638	016659	54	2 = 8
6	10.016680	016701	016722	016743	016764	016785	016806	016827	016848	016869	016890	016912	53	3 = 12
7	10.016933	016954	016975	016996	017017	017038	017059	017080	017101	017122	017143	017164	52	4 = 16
8	10.017185	017207	017228	017249	017270	017291	017312	017333	017354	017375	017396	017417	51	1 = 4
9	10.017438	017459	017480	017502	017523	017544	017565	017586	017607	017628	017649	017670	50	2 = 8
10	10.017691	017712	017733	017754	017775	017797	017818	017839	017860	017881	017902	017923	49	3 = 12
11	10.017944	017965	017986	018007	018028	018049	018071	018092	018113	018134	018155	018176	48	4 = 16
12	10.018197	018218	018239	018260	018281	018302	018323	018344	018366	018387	018408	018429	47	1 = 4
13	10.018450	018471	018492	018513	018534	018555	018576	018597	018618	018640	018661	018682	46	2 = 8
14	10.018703	018724	018745	018766	018787	018808	018829	018850	018871	018892	018913	018935	45	3 = 12
15	10.018956	018977	018998	019019	019040	019061	019082	019103	019124	019145	019166	019187	44	4 = 16
16	10.019209	019230	019251	019272	019293	019314	019335	019356	019377	019398	019419	019440	43	1 = 4
17	10.019461	019483	019504	019525	019546	019567	019588	019609	019630	019651	019672	019693	42	2 = 8
18	10.019714	019735	019757	019778	019799	019820	019841	019862	019883	019904	019925	019946	41	3 = 12
19	10.019967	019988	020009	020031	020052	020073	020094	020115	020136	020157	020178	020199	40	4 = 16
20	10.020220	020241	020262	020283	020305	020326	020347	020368	020389	020410	020431	020452	39	1 = 4
21	10.020473	020494	020515	020536	020557	020579	020600	020621	020642	020663	020684	020705	38	2 = 8
22	10.020726	020747	020768	020789	020810	020832	020853	020874	020895	020916	020937	020958	37	3 = 12
23	10.020979	021000	021021	021042	021063	021084	021106	021127	021148	021169	021190	021211	36	4 = 16
24	10.021232	021253	021274	021295	021316	021337	021359	021380	021401	021422	021443	021464	35	1 = 4
25	10.021485	021506	021527	021548	021569	021590	021611	021633	021654	021675	021696	021717	34	2 = 8
26	10.021738	021759	021780	021801	021822	021843	021864	021886	021907	021928	021949	021970	33	3 = 12
27	10.021991	022012	022033	022054	022075	022096	022117	022139	022160	022181	022202	022223	32	4 = 16
28	10.022244	022265	022286	022307	022328	022349	022370	022392	022413	022434	022455	022476	31	1 = 4
29	10.022497	022518	022539	022560	022581	022602	022623	022645	022666	022687	022708	022729	30	2 = 8
30	10.022750	022771	022792	022813	022834	022855	022876	022898	022919	022940	022961	022982	29	3 = 12
31	10.023003	023024	023045	023066	023087	023108	023129	023151	023172	023193	023214	023235	28	4 = 16
32	10.023256	023277	023298	023319	023340	023361	023383	023404	023425	023446	023467	023488	27	1 = 4
33	10.023509	023530	023551	023572	023593	023614	023636	023657	023678	023699	023720	023741	26	2 = 8
34	10.023762	023783	023804	023825	023846	023867	023889	023910	023931	023952	023973	023994	25	3 = 12
35	10.024015	024036	024057	024078	024099	024121	024142	024163	024184	024205	024226	024247	24	4 = 16
36	10.024268	024289	024310	024331	024353	024374	024395	024416	024437	024458	024479	024500	23	1 = 4
37	10.024521	024542	024563	024584	024606	024627	024648	024669	024690	024711	024732	024753	22	2 = 8
38	10.024774	024795	024816	024838	024859	024880	024901	024922	024943	024964	024985	025006	21	3 = 12
39	10.025027	025048	025070	025091	025112	025133	025154	025175	025196	025217	025238	025259	20	4 = 16
40	10.025280	025302	025323	025344	025365	025386	025407	025428	025449	025470	025491	025512	19	1 = 4
41	10.025534	025555	025576	025597	025618	025639	025660	025681	025702	025723	025744	025766	18	2 = 8
42	10.025787	025808	025829	025850	025871	025892	025913	025934	025955	025976	025998	026019	17	3 = 12
43	10.026040	026061	026082	026103	026124	026145	026166	026187	026209	026230	026251	026272	16	4 = 16
44	10.026293	026314	026335	026356	026377	026398	026419	026441	026462	026483	026504	026525	15	1 = 4
45	10.026546	026567	026588	026609	026630	026651	026673	026694	026715	026736	026757	026778	14	2 = 8
46	10.026799	026820	026841	026862	026884	026905	026926	026947	026968	026989	027010	027031	13	3 = 12
47	10.027052	027073	027094	027116	027137	027158	027179	027200	027221	027242	027263	027284	12	4 = 16
48	10.027305	027327	027348	027369	027390	027411	027432	027453	027474	027495	027516	027538	11	1 = 4
49	10.027559	027580	027601	027622	027643	027664	027685	027706	027727	027748	027770	027791	10	2 = 8
50	10.027812	027833	027854	027875	027896	027917	027938	027959	027981	028002	028023	028044	9	3 = 12
51	10.028065	028086	028107	028128	028149	028170	028192	028213	028234	028255	028276	028297	8	4 = 16
52	10.028318	028339	028360	028381	028403	028424	028445	028466	028487	028508	028529	028550	7	1 = 4
53	10.028571	028592	028614	028635	028656	028677	028698	028719	028740	028761	028782	028803	6	2 = 8
54	10.028825	028846	028867	028888	028909	028930	028951	028972	028993	029015	029036	029057	5	3 = 12
55	10.029078	029099	029120	029141	029162	029183	029204	029226	029247	029268	029289	029310	4	4 = 16
56	10.029331	029352	029373	029394	029415	029437	029458	029479	029500	029521	029542	029563	3	1 = 4
57	10.029584	029605	029626	029648	029669	029690	029711	029732	029753	029774	029795	029816	2	2 = 8
58	10.029838	029859	029880	029901	029922	029943	029964	029985	030006	030027	030049	030070	1	3 = 12
59	10.030091	030112	030133	030154	030175	030196	030217	030239	030260	030281	030302	030323	0	4 = 16
Minutes	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Propor. parts.
Co-tangent of 43 degrees, or Tangent of 133 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 47 degrees, or Co-tangent of 137 degrees.												Minutes	Proportional parts.
Y	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
0344	030368	030386	030407	030429	030450	030471	030492	030513	030534	030555	030576	59	1" = 4
0597	030618	030640	030661	030682	030703	030724	030745	030766	030787	030808	030830	58	2. 8
0851	030872	030893	030914	030935	030956	030977	030998	031020	031041	031062	031083	57	3. 13
1104	031125	031146	031167	031188	031210	031231	031252	031273	031294	031315	031336	56	4. 17
1357	031378	031400	031421	031442	031463	031484	031505	031526	031547	031568	031589	55	1 = 4
1611	031632	031653	031674	031695	031716	031737	031758	031780	031801	031822	031843	54	2. 8
1864	031885	031906	031927	031948	031970	031991	032012	032033	032054	032075	032096	53	3. 13
2117	032138	032160	032181	032202	032223	032244	032265	032286	032307	032328	032350	52	4. 17
2371	032392	032413	032434	032455	032476	032497	032518	032540	032561	032582	032603	51	1" = 4
2624	032645	032666	032687	032708	032729	032751	032772	032793	032814	032835	032856	50	2. 8
2877	032899	032920	032941	032962	032983	033004	033025	033046	033067	033089	033110	49	3. 13
3131	033152	033173	033194	033215	033236	033257	033279	033300	033321	033342	033363	48	4. 17
3384	033405	033426	033448	033469	033490	033511	033532	033553	033574	033595	033616	47	1 = 4
3638	033659	033680	033701	033722	033743	033764	033785	033807	033828	033849	033870	46	2. 8
3891	033912	033933	033954	033976	033997	034018	034039	034060	034081	034102	034123	45	3. 13
4144	034166	034187	034208	034229	034250	034271	034292	034313	034334	034355	034377	44	4. 17
4398	034419	034440	034461	034482	034503	034524	034545	034567	034588	034609	034630	43	1 = 4
4651	034673	034694	034715	034736	034757	034778	034799	034820	034841	034863	034884	42	2. 8
4905	034926	034947	034968	034989	035010	035032	035053	035074	035095	035116	035137	41	3. 13
5158	035179	035201	035222	035243	035264	035285	035306	035327	035348	035370	035391	40	4. 17
5412	035433	035454	035475	035496	035517	035539	035560	035581	035602	035623	035644	39	1 = 4
5665	035686	035708	035729	035750	035771	035792	035813	035834	035855	035877	035898	38	2. 8
5919	035940	035961	035982	036003	036024	036045	036066	036088	036109	036130	036151	37	3. 13
6172	036194	036215	036236	036257	036278	036299	036320	036341	036363	036384	036405	36	4. 17
6426	036447	036468	036489	036510	036532	036553	036574	036595	036616	036637	036658	35	1 = 4
6680	036701	036722	036743	036764	036785	036806	036827	036849	036870	036891	036912	34	2. 8
6933	036954	036975	036996	037018	037039	037060	037081	037102	037123	037144	037166	33	3. 13
7187	037208	037229	037250	037271	037292	037313	037335	037356	037377	037398	037419	32	4. 17
7440	037461	037483	037504	037525	037546	037567	037588	037609	037630	037652	037673	31	1 = 4
7694	037715	037736	037757	037778	037800	037821	037842	037863	037884	037905	037926	30	2. 8
7947	037969	037990	038011	038032	038053	038074	038095	038117	038138	038159	038180	29	3. 13
8201	038222	038243	038265	038286	038307	038328	038349	038370	038391	038412	038434	28	4. 17
8455	038476	038497	038518	038539	038560	038582	038603	038624	038645	038666	038687	27	1 = 4
8708	038730	038751	038772	038793	038814	038835	038856	038878	038899	038920	038941	26	2. 8
8962	038983	039004	039026	039047	039068	039089	039110	039131	039152	039174	039195	25	3. 13
9216	039237	039258	039279	039300	039321	039343	039364	039385	039406	039427	039448	24	4. 17
9469	039491	039512	039533	039554	039575	039596	039617	039639	039660	039681	039702	23	1 = 4
9723	039744	039765	039787	039808	039829	039850	039871	039892	039913	039935	039956	22	2. 8
9977	039998	040019	040040	040062	040083	040104	040125	040146	040167	040188	040210	21	3. 13
2231	040252	040273	040294	040315	040336	040358	040379	040400	040421	040442	040463	20	4. 17
2484	040506	040527	040548	040569	040590	040611	040632	040654	040675	040696	040717	19	1 = 4
2738	040759	040780	040802	040823	040844	040865	040886	040907	040929	040950	040971	18	2. 8
2992	041013	041034	041055	041077	041098	041119	041140	041161	041182	041203	041225	17	3. 13
3246	041267	041288	041309	041330	041352	041373	041394	041415	041436	041457	041478	16	4. 17
3500	041521	041542	041563	041584	041605	041626	041648	041669	041690	041711	041732	15	1 = 4
3753	041775	041796	041817	041838	041859	041880	041901	041923	041944	041965	041986	14	2. 8
4007	042028	042050	042071	042092	042113	042134	042155	042176	042198	042219	042240	13	3. 13
4261	042282	042303	042325	042346	042367	042388	042409	042430	042451	042473	042494	12	4. 17
4515	042536	042557	042578	042600	042621	042642	042663	042684	042705	042727	042748	11	1 = 4
4769	042790	042811	042832	042853	042875	042896	042917	042938	042959	042980	043002	10	2. 8
5023	043044	043065	043086	043107	043129	043150	043171	043192	043213	043234	043255	9	3. 13
5277	043298	043319	043340	043361	043382	043404	043425	043446	043467	043488	043509	8	4. 17
5531	043552	043573	043594	043615	043636	043658	043679	043700	043721	043742	043763	7	1 = 4
5785	043806	043827	043848	043869	043890	043911	043933	043954	043975	043996	044017	6	2. 8
6038	044060	044081	044102	044123	044144	044165	044187	044208	044229	044250	044271	5	3. 13
6292	044314	044335	044356	044377	044398	044419	044441	044462	044483	044504	044525	4	4. 17
6546	044568	044589	044610	044631	044652	044673	044695	044716	044737	044758	044779	3	1 = 4
6800	044822	044843	044864	044885	044906	044927	044949	044970	044991	045012	045033	2	2. 8
7054	045076	045097	045118	045139	045160	045181	045203	045224	045245	045266	045287	1	3. 13
7308	045330	045351	045372	045393	045414	045435	045457	045478	045499	045520	045541	0	4. 17
	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proportional parts.
Co-tangent of 42 degrees, or Tangent of 132 degrees.													

LOGARITHMIC TANGENTS.

Minutes	Tangent of 48 degrees, or Co-tangent of 138 degrees.												Minutes	Seconds
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10.045563	045584	045605	045626	045647	045668	045690	045711	045732	045753	045774	045795	59	1"
1	10.045817	045838	045859	045880	045901	045922	045944	045965	045986	046007	046028	046049	58	2"
2	10.046071	046092	046113	046134	046155	046177	046198	046219	046240	046261	046282	046304	57	3"
3	10.046325	046346	046367	046388	046409	046431	046452	046473	046494	046515	046537	046558	56	4"
4	10.046579	046600	046621	046642	046664	046685	046706	046727	046748	046769	046791	046812	55	1"
5	10.046833	046854	046875	046897	046918	046939	046960	046981	047002	047024	047045	047066	54	2"
6	10.047087	047108	047129	047151	047172	047193	047214	047235	047257	047278	047299	047320	53	3"
7	10.047341	047362	047384	047405	047426	047447	047468	047490	047511	047532	047553	047574	52	4"
8	10.047595	047617	047638	047659	047680	047701	047723	047744	047765	047786	047807	047828	51	1"
9	10.047850	047871	047892	047913	047934	047956	047977	047998	048019	048040	048061	048083	50	2"
10	10.048104	048125	048146	048167	048189	048210	048231	048252	048273	048295	048316	048337	49	3"
11	10.048358	048379	048400	048422	048443	048464	048485	048506	048528	048549	048570	048591	48	4"
12	10.048612	048633	048655	048676	048697	048718	048739	048761	048782	048803	048824	048845	47	1"
13	10.048867	048888	048909	048930	048951	048973	048994	049015	049036	049057	049078	049100	46	2"
14	10.049121	049142	049163	049184	049206	049227	049248	049269	049290	049312	049333	049354	45	3"
15	10.049375	049396	049418	049439	049460	049481	049502	049523	049545	049566	049587	049608	44	4"
16	10.049629	049651	049672	049693	049714	049735	049757	049778	049799	049820	049841	049863	43	1"
17	10.049884	049905	049926	049947	049969	049990	050011	050032	050053	050075	050096	050117	42	2"
18	10.050138	050159	050180	050202	050223	050244	050265	050286	050308	050329	050350	050371	41	3"
19	10.050392	050414	050435	050456	050477	050498	050520	050541	050562	050583	050604	050626	40	4"
20	10.050647	050668	050689	050710	050732	050753	050774	050795	050816	050838	050859	050880	39	1"
21	10.050901	050922	050944	050965	050986	051007	051028	051050	051071	051092	051113	051134	38	2"
22	10.051156	051177	051198	051219	051240	051262	051283	051304	051325	051346	051368	051389	37	3"
23	10.051410	051431	051452	051474	051495	051516	051537	051558	051580	051601	051622	051643	36	4"
24	10.051664	051686	051707	051728	051749	051771	051792	051813	051834	051855	051877	051898	35	1"
25	10.051919	051940	051961	051983	052004	052025	052046	052067	052089	052110	052131	052152	34	2"
26	10.052173	052195	052216	052237	052258	052279	052301	052322	052343	052364	052386	052407	33	3"
27	10.052428	052449	052470	052492	052513	052534	052555	052576	052598	052619	052640	052661	32	4"
28	10.052682	052704	052725	052746	052767	052788	052810	052831	052852	052873	052895	052916	31	1"
29	10.052937	052958	052979	053001	053022	053043	053064	053085	053107	053128	053149	053170	30	2"
30	10.053192	053213	053234	053255	053276	053298	053319	053340	053361	053382	053403	053425	29	3"
31	10.053446	053467	053489	053510	053531	053552	053573	053595	053616	053637	053658	053679	28	4"
32	10.053701	053722	053743	053764	053786	053807	053828	053849	053870	053892	053913	053934	27	1"
33	10.053955	053976	053998	054019	054040	054061	054083	054104	054125	054146	054167	054189	26	2"
34	10.054210	054231	054252	054274	054295	054316	054337	054358	054380	054401	054422	054443	25	3"
35	10.054465	054486	054507	054528	054549	054571	054592	054613	054634	054656	054677	054698	24	4"
36	10.054719	054740	054762	054783	054804	054825	054847	054868	054889	054910	054931	054953	23	1"
37	10.054974	054995	055016	055038	055059	055080	055101	055122	055144	055165	055186	055207	22	2"
38	10.055229	055250	055271	055292	055313	055335	055356	055377	055398	055420	055441	055462	21	3"
39	10.055483	055505	055526	055547	055568	055589	055611	055632	055653	055674	055696	055717	20	4"
40	10.055738	055759	055781	055802	055823	055844	055865	055887	055908	055929	055950	055972	19	1"
41	10.055993	056014	056035	056056	056078	056099	056120	056141	056163	056184	056205	056226	18	2"
42	10.056248	056269	056290	056312	056333	056354	056375	056396	056417	056439	056460	056481	17	3"
43	10.056502	056524	056545	056566	056587	056609	056630	056651	056672	056693	056715	056736	16	4"
44	10.056757	056778	056800	056821	056842	056863	056885	056906	056927	056948	056970	056991	15	1"
45	10.057012	057033	057054	057076	057097	057118	057139	057161	057182	057203	057224	057246	14	2"
46	10.057267	057288	057309	057331	057352	057373	057394	057416	057437	057458	057479	057500	13	3"
47	10.057522	057543	057564	057585	057607	057628	057649	057670	057692	057713	057734	057755	12	4"
48	10.057777	057798	057819	057840	057862	057883	057904	057925	057947	057968	057989	058010	11	1"
49	10.058032	058053	058074	058095	058117	058138	058159	058180	058201	058223	058244	058265	10	2"
50	10.058286	058308	058329	058350	058371	058393	058414	058435	058456	058478	058499	058520	9	3"
51	10.058541	058563	058584	058605	058626	058648	058669	058690	058711	058733	058754	058775	8	4"
52	10.058796	058818	058839	058860	058881	058903	058924	058945	058966	058988	059009	059030	7	1"
53	10.059051	059073	059094	059115	059136	059158	059179	059200	059221	059243	059264	059285	6	2"
54	10.059306	059328	059349	059370	059391	059413	059434	059455	059476	059498	059519	059540	5	3"
55	10.059561	059583	059604	059625	059646	059668	059689	059710	059731	059753	059774	059795	4	4"
56	10.059816	059838	059859	059880	059902	059923	059944	059965	059987	060008	060029	060050	3	1"
57	10.060072	060093	060114	060135	060157	060178	060199	060220	060242	060263	060284	060305	2	2"
58	10.060327	060348	060369	060390	060412	060433	060454	060475	060497	060518	060539	060561	1	3"
59	10.060582	060603	060624	060646	060667	060688	060709	060731	060752	060773	060794	060816	0	4"
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	

Co-tangent of 41 degrees, or Tangent of 131 degrees.

LOGARITHMIC TANGENTS.

Tangent of 49 degrees, or Co-tangent of 139 degrees.													Minutes	Proport. parts.
0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
060837	060858	060879	060901	060922	060943	060964	060986	061007	061028	061050	061071	59	1" = 4	
061092	061113	061135	061156	061177	061198	061220	061241	061262	061283	061305	061326	58	2. 9	
061347	061368	061390	061411	061432	061454	061475	061496	061517	061539	061560	061581	57	3. 13	
061602	061624	061645	061666	061687	061709	061730	061751	061773	061794	061815	061836	56	4. 17	
061858	061879	061900	061921	061943	061964	061985	062007	062028	062049	062070	062091	55	1 = 4	
062113	062134	062155	062177	062198	062219	062241	062262	062283	062304	062326	062347	54	2. 9	
062368	062389	062411	062432	062453	062475	062496	062517	062538	062560	062581	062602	53	3. 13	
062623	062645	062666	062687	062709	062730	062751	062772	062794	062815	062836	062857	52	4. 17	
062879	062900	062921	062943	062964	062985	063006	063028	063049	063070	063092	063113	51	1 = 4	
063134	063155	063177	063198	063219	063240	063262	063283	063304	063326	063347	063368	50	2. 9	
063389	063411	063432	063453	063475	063496	063517	063538	063560	063581	063602	063623	49	3. 13	
063645	063666	063687	063709	063730	063751	063772	063794	063815	063836	063857	063879	48	4. 17	
063900	063921	063943	063964	063985	064007	064028	064049	064070	064092	064113	064134	47	1 = 4	
064156	064177	064198	064219	064241	064262	064283	064305	064326	064347	064368	064390	46	2. 9	
064411	064432	064454	064475	064496	064517	064538	064560	064581	064602	064623	064645	45	3. 13	
064666	064688	064709	064730	064752	064773	064794	064816	064837	064858	064879	064901	44	4. 17	
064922	064943	064965	064986	065007	065028	065050	065071	065092	065114	065135	065156	43	1 = 4	
065177	065199	065220	065241	065263	065284	065305	065327	065348	065369	065390	065412	42	2. 9	
065433	065454	065476	065497	065518	065539	065561	065582	065603	065625	065646	065667	41	3. 13	
065689	065710	065731	065752	065774	065795	065816	065838	065859	065880	065901	065923	40	4. 17	
065944	065965	065987	066008	066029	066051	066072	066093	066114	066136	066157	066178	39	1 = 4	
066200	066221	066242	066264	066285	066306	066327	066349	066370	066391	066413	066434	38	2. 9	
066455	066477	066498	066519	066541	066562	066583	066604	066626	066647	066668	066690	37	3. 13	
066711	066732	066754	066775	066796	066817	066839	066860	066881	066903	066924	066945	36	4. 17	
066967	066988	067009	067031	067052	067073	067094	067116	067137	067158	067180	067201	35	1 = 4	
067222	067244	067265	067286	067308	067329	067350	067371	067393	067414	067435	067457	34	2. 9	
067478	067499	067521	067542	067563	067585	067606	067627	067648	067670	067691	067712	33	3. 13	
067734	067755	067776	067798	067819	067840	067862	067883	067904	067926	067947	067968	32	4. 17	
067989	068011	068032	068053	068075	068096	068117	068139	068160	068181	068202	068224	31	1 = 4	
068245	068267	068288	068309	068331	068352	068373	068394	068416	068437	068458	068480	30	2. 9	
068501	068522	068544	068565	068586	068608	068629	068650	068672	068693	068714	068736	29	3. 13	
068757	068778	068800	068821	068842	068863	068885	068906	068927	068949	068970	068991	28	4. 17	
069013	069034	069055	069077	069098	069119	069141	069162	069183	069205	069226	069247	27	1 = 4	
069269	069290	069311	069333	069354	069375	069397	069418	069439	069461	069482	069503	26	2. 9	
069524	069546	069567	069588	069610	069631	069652	069674	069695	069716	069738	069759	25	3. 13	
069780	069802	069823	069844	069866	069887	069908	069930	069951	069972	069994	070015	24	4. 17	
070036	070058	070079	070100	070122	070143	070164	070186	070207	070228	070250	070271	23	1 = 4	
070292	070314	070335	070356	070378	070399	070420	070442	070463	070484	070506	070527	22	2. 9	
070548	070570	070591	070612	070634	070655	070676	070698	070719	070740	070762	070783	21	3. 13	
070804	070826	070847	070868	070890	070911	070932	070954	070975	070996	071018	071039	20	4. 17	
071060	071082	071103	071124	071146	071167	071188	071210	071231	071252	071274	071295	19	1 = 4	
071316	071338	071359	071380	071402	071423	071444	071466	071487	071508	071530	071551	18	2. 9	
071573	071594	071615	071637	071658	071679	071701	071722	071743	071765	071786	071807	17	3. 13	
071829	071850	071871	071893	071914	071935	071957	071978	071999	072021	072042	072063	16	4. 17	
072085	072106	072127	072149	072170	072191	072213	072234	072256	072277	072298	072320	15	1 = 4	
072341	072362	072384	072405	072426	072448	072469	072490	072512	072533	072554	072576	14	2. 9	
072597	072618	072640	072661	072683	072704	072725	072747	072768	072789	072811	072832	13	3. 13	
072853	072875	072896	072917	072939	072960	072981	073003	073024	073046	073067	073088	12	4. 17	
073110	073131	073152	073174	073195	073216	073238	073259	073280	073302	073323	073344	11	1 = 4	
073366	073387	073409	073430	073451	073473	073494	073515	073537	073558	073579	073601	10	2. 9	
073622	073643	073665	073686	073708	073729	073750	073772	073793	073814	073836	073857	9	3. 13	
073878	073900	073921	073943	073964	073985	074007	074028	074049	074071	074092	074113	8	4. 17	
074135	074156	074177	074199	074220	074242	074263	074284	074306	074327	074348	074370	7	1 = 4	
074391	074413	074434	074455	074477	074498	074519	074541	074562	074583	074605	074626	6	2. 9	
074648	074669	074690	074712	074733	074754	074776	074797	074818	074840	074861	074883	5	3. 13	
074904	074925	074947	074968	074989	075011	075032	075054	075075	075096	075118	075139	4	4. 17	
075160	075182	075203	075225	075246	075267	075289	075310	075331	075353	075374	075395	3	1 = 4	
075417	075438	075460	075481	075502	075524	075545	075566	075588	075609	075631	075652	2	2. 9	
075673	075695	075716	075737	075759	075780	075802	075823	075844	075866	075887	075908	1	3. 13	
075930	075951	075973	075994	076015	076037	076058	076080	076101	076122	076144	076165	0	4. 17	
50"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proport. parts.	
Co-tangent of 40 degrees, or Tangent of 130 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 50 degrees, or Co-tangent of 140 degrees.													
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes
0	10.076186	076208	076229	076251	076272	076293	076315	076336	076357	076379	076400	076422	59
1	10.076443	076464	076486	076507	076529	076550	076571	076593	076614	076635	076657	076678	58
2	10.076700	076721	076742	076764	076785	076807	076828	076849	076871	076892	076913	076935	57
3	10.076956	076977	076999	077020	077042	077063	077085	077106	077127	077149	077170	077191	56
4	10.077213	077234	077256	077277	077298	077320	077341	077363	077384	077405	077427	077448	55
5	10.077470	077491	077512	077534	077555	077577	077598	077619	077641	077662	077683	077705	54
6	10.077726	077748	077769	077790	077812	077833	077855	077876	077897	077919	077940	077962	53
7	10.077983	078004	078026	078047	078069	078090	078111	078133	078154	078176	078197	078218	52
8	10.078240	078261	078283	078304	078325	078347	078368	078390	078411	078432	078454	078475	51
9	10.078497	078518	078539	078561	078582	078604	078625	078646	078668	078689	078711	078732	50
10	10.078753	078775	078796	078818	078839	078860	078882	078903	078925	078946	078967	078989	49
11	10.079010	079032	079053	079074	079096	079117	079139	079160	079181	079203	079224	079246	48
12	10.079267	079288	079310	079331	079353	079374	079396	079417	079438	079460	079481	079503	47
13	10.079524	079545	079567	079588	079610	079631	079652	079674	079695	079717	079738	079759	46
14	10.079781	079802	079824	079845	079867	079888	079909	079931	079952	079974	079995	080016	45
15	10.080038	080059	080081	080102	080123	080145	080166	080188	080209	080231	080252	080273	44
16	10.080295	080316	080338	080359	080380	080402	080423	080445	080466	080488	080509	080530	43
17	10.080552	080573	080595	080616	080637	080659	080680	080702	080723	080745	080766	080787	42
18	10.080809	080830	080852	080873	080895	080916	080937	080959	080980	081002	081023	081044	41
19	10.081066	081087	081109	081130	081152	081173	081194	081216	081237	081258	081280	081302	40
20	10.081323	081344	081366	081387	081409	081430	081452	081473	081494	081516	081537	081559	39
21	10.081580	081602	081623	081644	081666	081687	081709	081730	081752	081773	081794	081816	38
22	10.081837	081859	081880	081902	081923	081944	081966	081987	082009	082030	082052	082073	37
23	10.082094	082116	082137	082159	082180	082202	082223	082244	082266	082287	082309	082330	36
24	10.082352	082373	082395	082416	082437	082459	082480	082502	082523	082545	082566	082587	35
25	10.082609	082630	082652	082673	082695	082716	082738	082759	082780	082802	082823	082845	34
26	10.082866	082888	082909	082930	082952	082973	082995	083016	083038	083059	083081	083102	33
27	10.083123	083145	083166	083188	083209	083231	083252	083274	083295	083316	083338	083359	32
28	10.083381	083402	083424	083445	083467	083488	083509	083531	083552	083574	083595	083617	31
29	10.083638	083660	083681	083702	083724	083745	083767	083788	083810	083831	083853	083874	30
30	10.083895	083917	083938	083960	083981	084003	084024	084046	084067	084089	084110	084131	29
31	10.084153	084174	084196	084217	084239	084260	084282	084303	084325	084346	084367	084389	28
32	10.084410	084432	084453	084475	084496	084518	084539	084561	084582	084604	084625	084646	27
33	10.084668	084689	084711	084732	084754	084775	084797	084818	084839	084861	084882	084904	26
34	10.084925	084947	084968	084990	085011	085033	085054	085075	085097	085118	085140	085161	25
35	10.085181	085203	085224	085246	085267	085289	085310	085332	085353	085375	085396	085418	24
36	10.085440	085462	085483	085505	085526	085548	085569	085591	085612	085634	085655	085677	23
37	10.085698	085719	085741	085762	085784	085805	085827	085848	085870	085891	085913	085934	22
38	10.085956	085977	085999	086020	086042	086063	086085	086106	086127	086149	086170	086192	21
39	10.086213	086235	086256	086278	086299	086321	086342	086364	086385	086406	086428	086449	20
40	10.086471	086492	086514	086535	086557	086578	086600	086621	086643	086664	086686	086707	19
41	10.086729	086750	086772	086793	086814	086836	086857	086879	086900	086922	086943	086965	18
42	10.086986	087008	087029	087051	087072	087094	087115	087137	087158	087180	087201	087223	17
43	10.087244	087266	087287	087309	087330	087351	087373	087394	087416	087437	087459	087480	16
44	10.087502	087523	087545	087566	087588	087609	087631	087652	087674	087695	087717	087738	15
45	10.087760	087781	087803	087824	087846	087867	087889	087910	087932	087953	087975	087996	14
46	10.088018	088039	088061	088082	088103	088125	088146	088168	088189	088211	088232	088254	13
47	10.088275	088297	088318	088340	088361	088383	088404	088426	088447	088469	088490	088512	12
48	10.088533	088555	088576	088598	088619	088641	088662	088684	088705	088727	088748	088770	11
49	10.088791	088813	088834	088856	088877	088899	088920	088942	088963	088985	089006	089028	10
50	10.089049	089071	089092	089114	089135	089157	089178	089200	089221	089243	089264	089286	9
51	10.089307	089329	089350	089372	089393	089415	089436	089458	089479	089501	089522	089544	8
52	10.089565	089587	089608	089630	089651	089673	089694	089716	089737	089759	089780	089802	7
53	10.089823	089845	089866	089888	089909	089931	089952	089974	089995	090017	090038	090060	6
54	10.090081	090103	090124	090146	090168	090189	090211	090232	090254	090275	090297	090318	5
55	10.090340	090361	090383	090404	090426	090447	090469	090490	090512	090533	090555	090576	4
56	10.090598	090619	090641	090662	090684	090705	090727	090748	090770	090791	090813	090834	3
57	10.090856	090877	090899	090921	090942	090964	090985	091007	091028	091050	091071	091093	2
58	10.091114	091136	091157	091179	091200	091222	091243	091265	091286	091308	091329	091351	1
59	10.091372	091394	091415	091437	091458	091480	091502	091523	091545	091566	091588	091609	0
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes
Co-tangent of 39 degrees, or Tangent of 129 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 51 degrees, or Co-tangent of 141 degrees.											Minute	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
31	091652	091674	091695	091717	091738	091760	091781	091803	091824	091846	59	1" = 4
89	091911	091932	091954	091975	091997	092018	092040	092061	092083	092104	58	2. 9
47	092169	092190	092212	092234	092255	092277	092298	092320	092341	092363	57	3. 13
06	092427	092449	092470	092492	092513	092535	092557	092578	092600	092621	56	4. 17
64	092686	092707	092729	092750	092772	092793	092815	092837	092858	092880	55	1 = 4
23	092944	092966	092987	093009	093030	093052	093073	093095	093117	093138	54	2. 9
81	093203	093224	093246	093267	093289	093310	093332	093354	093375	093397	53	3. 13
40	093461	093483	093504	093526	093547	093569	093590	093612	093634	093655	52	4. 17
98	093720	093741	093763	093784	093806	093828	093849	093871	093892	093914	51	1 = 4
57	093978	094000	094021	094043	094065	094086	094108	094129	094151	094172	50	2. 9
15	094237	094259	094280	094302	094323	094345	094366	094388	094409	094431	49	5. 13
74	094496	094517	094539	094560	094582	094603	094625	094647	094668	094690	48	4. 17
33	094754	094776	094797	094819	094841	094862	094884	094905	094927	094948	47	1 = 4
91	095013	095035	095056	095078	095099	095121	095142	095164	095186	095207	46	2. 9
50	095272	095293	095315	095336	095358	095380	095401	095423	095444	095466	45	3. 13
29	095531	095552	095574	095595	095617	095638	095660	095682	095703	095725	44	4. 17
88	095789	095811	095833	095854	095876	095897	095919	095940	095962	095984	43	1 = 4
27	096048	096070	096091	096113	096135	096156	096178	096199	096221	096242	42	2. 9
86	096307	096329	096350	096372	096393	096415	096437	096458	096480	096501	41	3. 13
44	096566	096588	096609	096631	096652	096674	096695	096717	096739	096760	40	4. 17
23	096825	096847	096868	096890	096911	096933	096954	096976	096998	097019	39	1 = 4
81	097084	097106	097127	097149	097170	097192	097213	097235	097257	097278	38	2. 9
40	097343	097365	097386	097408	097429	097451	097473	097494	097516	097537	37	3. 13
80	097602	097624	097645	097667	097688	097710	097732	097753	097775	097796	36	4. 17
40	097861	097883	097904	097926	097947	097969	097991	098012	098034	098055	35	1 = 4
99	098120	098142	098163	098185	098207	098228	098250	098271	098293	098315	34	2. 9
58	098379	098401	098423	098444	098466	098487	098509	098531	098552	098574	33	3. 13
17	098639	098660	098682	098703	098725	098747	098768	098790	098811	098833	32	4. 17
76	098898	098919	098941	098963	098984	099006	099027	099049	099071	099092	31	1 = 4
35	099157	099179	099200	099222	099243	099265	099287	099308	099330	099352	30	2. 9
95	099416	099438	099460	099481	099503	099524	099546	099568	099589	099611	29	3. 13
54	099676	099697	099719	099741	099762	099784	099805	099827	099849	099870	28	4. 17
13	099935	099957	099978	100000	100022	100043	100065	100086	100108	100130	27	1 = 4
73	100194	100216	100238	100259	100281	100303	100324	100346	100367	100389	26	2. 9
32	100454	100476	100497	100519	100540	100562	100584	100605	100627	100648	25	3. 13
91	100713	100735	100757	100778	100800	100821	100843	100865	100886	100908	24	4. 17
51	100973	100994	101016	101038	101059	101081	101103	101124	101146	101168	23	1 = 4
11	101232	101254	101276	101297	101319	101341	101362	101384	101405	101427	22	2. 9
70	101497	101519	101541	101563	101585	101606	101628	101649	101671	101692	21	3. 13
30	101752	101773	101795	101816	101838	101860	101881	101902	101925	101946	20	4. 17
90	102011	102033	102055	102076	102098	102119	102141	102163	102184	102206	19	1 = 4
50	102271	102293	102314	102336	102357	102379	102401	102422	102444	102466	18	2. 9
10	102531	102552	102574	102596	102617	102639	102661	102682	102704	102725	17	3. 13
69	102790	102812	102834	102855	102877	102899	102920	102942	102964	102985	16	4. 17
29	103050	103072	103093	103115	103137	103158	103180	103202	103223	103245	15	1 = 4
88	103310	103332	103353	103375	103397	103418	103440	103462	103483	103505	14	2. 9
48	103570	103592	103613	103635	103656	103678	103700	103721	103743	103765	13	3. 13
08	103830	103851	103873	103895	103916	103938	103960	103981	104003	104025	12	4. 17
68	104090	104111	104133	104155	104176	104198	104220	104241	104263	104285	11	1 = 4
28	104350	104371	104393	104415	104436	104458	104480	104501	104523	104545	10	2. 9
88	104610	104631	104653	104675	104696	104718	104740	104761	104783	104805	9	3. 13
48	104870	104891	104913	104935	104956	104978	105000	105021	105043	105065	8	4. 17
08	105130	105151	105173	105195	105217	105238	105260	105282	105303	105325	7	1 = 4
68	105390	105412	105433	105455	105477	105498	105520	105542	105563	105585	6	2. 9
28	105650	105672	105693	105715	105737	105758	105780	105802	105824	105845	5	3. 13
89	105910	105932	105954	105975	105997	106019	106040	106062	106084	106105	4	4. 17
49	106171	106192	106214	106236	106257	106279	106301	106322	106344	106366	3	1 = 4
09	106431	106452	106474	106496	106518	106539	106561	106583	106604	106626	2	2. 9
69	106691	106713	106734	106756	106777	106800	106821	106843	106865	106886	1	3. 13
29	106951	106973	106995	107017	107038	107060	107082	107103	107125	107147	0	4. 17
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minute	Proport. parts.
Co-tangent of 38 degrees, or Tangent of 128 degrees.											Minute	Proport. parts.

TABLE XXXVII.

LOGARITHMIC TANGENTS.

Tangent of 52 degrees, or Co-tangent of 142 degrees.												
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
0	10.107190	107212	107234	107255	107277	107299	107320	107342	107364	107385	107407	107429
1	10.107451	107472	107494	107516	107537	107559	107581	107602	107624	107646	107668	107689
2	10.107711	107733	107754	107776	107798	107820	107841	107863	107885	107906	107928	107950
3	10.107971	107993	108015	108037	108058	108080	108102	108123	108145	108167	108189	108210
4	10.108232	108254	108275	108297	108319	108341	108362	108384	108406	108427	108449	108471
5	10.108493	108514	108536	108558	108579	108601	108623	108645	108666	108688	108710	108731
6	10.108753	108775	108797	108818	108840	108862	108883	108905	108927	108949	108970	108992
7	10.109014	109036	109057	109079	109101	109122	109144	109166	109188	109209	109231	109252
8	10.109275	109296	109318	109340	109361	109383	109405	109427	109448	109470	109492	109514
9	10.109535	109557	109579	109600	109622	109644	109666	109687	109709	109731	109753	109774
10	10.109796	109818	109839	109861	109883	109905	109926	109948	109970	109992	110013	110035
11	10.110057	110079	110100	110122	110144	110165	110187	110209	110231	110252	110274	110296
12	10.110318	110339	110361	110383	110405	110426	110448	110470	110492	110513	110535	110557
13	10.110579	110600	110622	110644	110665	110687	110709	110731	110752	110774	110796	110818
14	10.110839	110861	110883	110905	110926	110948	110970	110992	111013	111035	111057	111079
15	10.111100	111122	111144	111166	111187	111209	111231	111252	111274	111296	111318	111340
16	10.111361	111383	111405	111427	111448	111470	111492	111514	111535	111557	111579	111601
17	10.111622	111644	111666	111688	111709	111731	111753	111775	111796	111818	111840	111862
18	10.111883	111905	111927	111949	111971	111992	112014	112036	112058	112079	112101	112123
19	10.112145	112166	112188	112210	112232	112253	112275	112297	112319	112340	112362	112384
20	10.112406	112428	112449	112471	112493	112515	112536	112558	112580	112602	112623	112645
21	10.112667	112689	112710	112732	112754	112776	112798	112819	112841	112863	112885	112906
22	10.112928	112950	112972	112993	113015	113037	113059	113081	113102	113124	113146	113168
23	10.113189	113211	113233	113255	113277	113298	113320	113342	113364	113385	113407	113429
24	10.113451	113473	113494	113516	113538	113560	113581	113603	113625	113647	113669	113690
25	10.113712	113734	113756	113777	113799	113821	113843	113865	113886	113908	113930	113952
26	10.113973	113995	114017	114039	114061	114083	114104	114126	114148	114170	114191	114213
27	10.114235	114257	114279	114300	114322	114344	114366	114387	114409	114431	114453	114475
28	10.114496	114518	114540	114562	114584	114605	114627	114649	114671	114693	114714	114736
29	10.114758	114780	114802	114823	114845	114867	114889	114910	114932	114954	114976	114998
30	10.115019	115041	115063	115085	115107	115128	115150	115172	115194	115216	115237	115259
31	10.115281	115303	115325	115346	115368	115390	115412	115434	115455	115477	115499	115521
32	10.115543	115565	115586	115608	115630	115652	115674	115695	115717	115739	115761	115783
33	10.115804	115826	115848	115870	115892	115913	115935	115957	115979	116001	116022	116044
34	10.116066	116088	116110	116132	116153	116175	116197	116219	116241	116262	116284	116306
35	10.116328	116350	116371	116393	116415	116437	116459	116481	116502	116524	116546	116568
36	10.116590	116611	116633	116655	116677	116699	116721	116742	116764	116786	116808	116830
37	10.116852	116873	116895	116917	116939	116961	116982	117004	117026	117048	117070	117092
38	10.117113	117135	117157	117179	117201	117223	117244	117266	117288	117310	117332	117353
39	10.117375	117397	117419	117441	117463	117484	117506	117528	117550	117572	117594	117615
40	10.117637	117659	117681	117703	117725	117746	117768	117790	117812	117834	117856	117877
41	10.117899	117921	117943	117965	117987	118008	118030	118052	118074	118096	118118	118140
42	10.118161	118183	118205	118227	118249	118271	118292	118314	118336	118358	118380	118402
43	10.118423	118445	118467	118489	118511	118533	118554	118576	118598	118620	118642	118664
44	10.118686	118707	118729	118751	118773	118795	118817	118839	118860	118882	118904	118926
45	10.118948	118970	118991	119013	119035	119057	119079	119101	119123	119144	119166	119188
46	10.119210	119232	119254	119276	119297	119319	119341	119363	119385	119407	119429	119450
47	10.119472	119494	119516	119538	119560	119582	119603	119625	119647	119669	119691	119713
48	10.119735	119756	119778	119800	119822	119844	119866	119888	119909	119931	119953	119975
49	10.119997	120019	120041	120062	120084	120106	120128	120150	120172	120194	120216	120237
50	10.120259	120281	120303	120325	120347	120369	120390	120412	120434	120456	120478	120500
51	10.120522	120544	120565	120587	120609	120631	120653	120675	120697	120719	120740	120762
52	10.120784	120806	120828	120850	120872	120894	120915	120937	120959	120981	121003	121025
53	10.121047	121069	121091	121112	121134	121156	121178	121200	121222	121244	121266	121287
54	10.121309	121331	121353	121375	121397	121419	121441	121462	121484	121506	121528	121550
55	10.121572	121594	121616	121638	121659	121681	121703	121725	121747	121769	121791	121813
56	10.121835	121856	121878	121900	121922	121944	121966	121988	122010	122032	122053	122075
57	10.122097	122119	122141	122163	122185	122207	122229	122250	122272	122294	122316	122338
58	10.122360	122382	122404	122426	122448	122469	122491	122513	122535	122557	122579	122601
59	10.122623	122645	122667	122688	122710	122732	122754	122776	122798	122820	122842	122864
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'
Co-tangent of 37 degrees, or Tangent of 127 degrees.												
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'

LOGARITHMIC TANGENTS.

Tangent of 53 degrees, or Co-tangent of 143 degrees.												Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
2886	122907	122929	122951	122973	122995	123017	123039	123061	123083	123105	123127	59	1" = 4
3148	123170	123192	123214	123236	123258	123280	123302	123324	123346	123367	123389	58	2. 9
3411	123433	123455	123477	123499	123521	123543	123565	123587	123609	123630	123652	57	3. 13
3674	123696	123718	123740	123762	123784	123806	123828	123850	123872	123893	123915	56	4. 18
3937	123959	123981	124003	124025	124047	124069	124091	124113	124135	124156	124178	55	1 = 4
4200	124222	124244	124266	124288	124310	124332	124354	124376	124398	124420	124441	54	2. 9
4463	124485	124507	124529	124551	124573	124595	124617	124639	124661	124683	124705	53	3. 13
4727	124748	124770	124792	124814	124836	124858	124880	124902	124924	124946	124968	52	4. 18
4990	125012	125034	125056	125077	125099	125121	125143	125165	125187	125209	125231	51	1 = 4
5253	125275	125297	125319	125341	125363	125385	125406	125428	125450	125472	125494	50	2. 9
5516	125538	125560	125582	125604	125626	125648	125670	125692	125714	125736	125758	49	3. 13
5780	125801	125823	125845	125867	125889	125911	125933	125955	125977	125999	126021	48	4. 18
6043	126063	126085	126107	126129	126151	126173	126195	126217	126239	126261	126283	47	1 = 4
6306	126328	126350	126372	126394	126416	126438	126460	126482	126504	126526	126548	46	2. 9
6570	126592	126614	126636	126658	126679	126701	126723	126745	126767	126789	126811	45	3. 13
6833	126855	126877	126899	126921	126943	126965	126987	127009	127031	127053	127075	44	4. 18
7097	127119	127141	127163	127185	127207	127229	127250	127272	127294	127316	127338	43	1 = 4
7360	127382	127404	127426	127448	127470	127492	127514	127536	127558	127580	127602	42	2. 9
7624	127646	127668	127690	127712	127734	127756	127778	127800	127822	127844	127866	41	3. 13
7888	127910	127932	127954	127976	127997	128019	128041	128063	128085	128107	128129	40	4. 18
8151	128173	128195	128217	128239	128261	128283	128305	128327	128349	128371	128393	39	1 = 4
8415	128437	128459	128481	128503	128525	128547	128569	128591	128613	128635	128657	38	2. 9
8679	128701	128723	128745	128767	128789	128811	128833	128855	128877	128899	128921	37	3. 13
8943	128965	128987	129009	129031	129053	129075	129097	129119	129141	129163	129185	36	4. 18
9207	129229	129251	129273	129295	129317	129339	129361	129383	129405	129427	129449	35	1 = 4
9471	129493	129515	129537	129559	129581	129603	129625	129647	129669	129691	129713	34	2. 9
9735	129757	129779	129801	129823	129845	129867	129889	129911	129933	129955	129977	33	3. 13
9999	130021	130043	130065	130087	130109	130131	130153	130175	130197	130219	130241	32	4. 18
0263	130285	130307	130329	130351	130373	130395	130417	130439	130461	130483	130505	31	1 = 4
0527	130549	130571	130593	130615	130637	130659	130681	130703	130725	130747	130769	30	2. 9
0791	130813	130835	130857	130879	130901	130923	130945	130967	130989	131011	131033	29	3. 13
1055	131077	131099	131121	131143	131165	131187	131209	131231	131254	131276	131298	28	4. 18
1320	131342	131364	131386	131408	131430	131452	131474	131496	131518	131540	131562	27	1 = 4
1584	131606	131628	131650	131672	131694	131716	131738	131760	131782	131804	131826	26	2. 9
1848	131870	131892	131914	131936	131958	131980	132002	132024	132047	132069	132091	25	3. 13
2113	132135	132157	132179	132201	132223	132245	132267	132289	132311	132333	132355	24	4. 18
2377	132399	132421	132443	132465	132487	132509	132531	132554	132576	132598	132620	23	1 = 4
2642	132664	132686	132708	132730	132752	132774	132796	132818	132840	132862	132884	22	2. 9
2906	132928	132950	132972	132994	133016	133038	133060	133083	133105	133127	133149	21	3. 13
3171	133193	133215	133237	133259	133281	133303	133325	133347	133369	133391	133413	20	4. 18
3436	133458	133480	133502	133524	133546	133568	133590	133612	133634	133656	133678	19	1 = 4
3700	133722	133744	133766	133788	133811	133833	133855	133877	133899	133921	133943	18	2. 9
3965	133987	134009	134031	134053	134075	134097	134119	134142	134164	134186	134208	17	3. 13
4230	134252	134274	134296	134318	134340	134362	134384	134406	134428	134450	134473	16	4. 18
4495	134517	134539	134561	134583	134605	134627	134649	134671	134693	134715	134737	15	1 = 4
4760	134782	134804	134826	134848	134870	134892	134914	134936	134958	134980	135002	14	2. 9
5024	135047	135069	135091	135113	135135	135157	135179	135201	135223	135245	135267	13	3. 13
5289	135312	135334	135356	135378	135400	135422	135444	135466	135488	135510	135532	12	4. 18
5555	135577	135599	135621	135643	135665	135687	135709	135731	135753	135775	135797	11	1 = 4
5820	135842	135864	135886	135908	135930	135952	135974	135996	136018	136041	136063	10	2. 9
6085	136107	136129	136151	136173	136195	136217	136239	136262	136284	136306	136328	9	3. 13
6350	136372	136394	136416	136438	136460	136483	136505	136527	136549	136571	136593	8	4. 18
6615	136637	136659	136682	136704	136726	136748	136770	136792	136814	136836	136858	7	1 = 4
6880	136903	136925	136947	136969	136991	137013	137035	137057	137079	137102	137124	6	2. 9
7146	137168	137190	137212	137234	137256	137279	137301	137323	137345	137367	137389	5	3. 13
7411	137433	137455	137478	137500	137522	137544	137566	137588	137610	137632	137655	4	4. 18
7677	137699	137721	137743	137765	137787	137809	137832	137854	137876	137898	137920	3	1 = 4
7942	137964	137986	138009	138031	138053	138075	138097	138119	138141	138163	138186	2	2. 9
8208	138230	138252	138274	138296	138318	138340	138363	138385	138407	138429	138451	1	3. 13
8473	138495	138518	138540	138562	138584	138606	138628	138650	138672	138695	138717	0	4. 18
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°		Minutes	Proport. parts.
Co-tangent of 36 degrees, or Tangent of 126 degrees.													

LOGARITHMIC TANGENTS.

Minutes	Tangent of 54 degrees, or Co-tangent of 144 degrees.												Minutes	Propaganda
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10.138739	138761	138783	138805	138827	138850	138872	138894	138916	138938	138960	138982	59	1° = 4
1	10.139005	139027	139049	139071	139093	139115	139137	139160	139182	139204	139226	139248	58	2. 9
2	10.139270	139292	139315	139337	139359	139381	139403	139425	139448	139470	139492	139514	57	3. 13
3	10.139536	139558	139580	139603	139625	139647	139669	139691	139713	139736	139758	139780	56	4. 18
4	10.139802	139824	139846	139868	139891	139913	139935	139957	139979	140001	140024	140046	55	1 = 4
5	10.140068	140090	140112	140134	140157	140179	140201	140223	140245	140267	140289	140312	54	2. 9
6	10.140334	140356	140378	140400	140422	140445	140467	140489	140511	140533	140555	140578	53	3. 13
7	10.140600	140622	140644	140666	140688	140711	140733	140755	140777	140799	140822	140844	52	4. 18
8	10.140866	140888	140910	140932	140955	140977	140999	141021	141043	141065	141088	141110	51	1 = 4
9	10.141132	141154	141176	141198	141221	141243	141265	141287	141309	141332	141354	141376	50	2. 9
10	10.141398	141420	141442	141465	141487	141509	141531	141553	141576	141598	141620	141642	49	3. 13
11	10.141664	141686	141709	141731	141753	141775	141797	141820	141842	141864	141886	141908	48	4. 18
12	10.141931	141953	141975	141997	142019	142041	142064	142086	142108	142130	142152	142175	47	1 = 4
13	10.142197	142219	142241	142263	142286	142308	142330	142352	142374	142397	142419	142441	46	2. 9
14	10.142463	142485	142508	142530	142552	142574	142596	142619	142641	142663	142685	142707	45	3. 13
15	10.142730	142752	142774	142796	142818	142841	142863	142885	142907	142929	142952	142974	44	4. 18
16	10.142996	143018	143040	143063	143085	143107	143129	143152	143174	143196	143218	143240	43	1 = 4
17	10.143263	143285	143307	143329	143351	143374	143396	143418	143440	143462	143485	143507	42	2. 9
18	10.143529	143551	143574	143596	143618	143640	143662	143685	143707	143729	143751	143774	41	3. 13
19	10.143796	143818	143840	143862	143885	143907	143929	143951	143974	143996	144018	144040	40	4. 18
20	10.144062	144085	144107	144129	144151	144174	144196	144218	144240	144262	144285	144307	39	1 = 4
21	10.144329	144351	144374	144396	144418	144440	144462	144485	144507	144529	144551	144574	38	2. 9
22	10.144596	144618	144640	144663	144685	144707	144729	144752	144774	144796	144818	144840	37	3. 13
23	10.144863	144885	144907	144929	144952	144974	144996	145018	145041	145063	145085	145107	36	4. 18
24	10.145130	145152	145174	145196	145219	145241	145263	145285	145308	145330	145352	145374	35	1 = 4
25	10.145397	145419	145441	145463	145485	145508	145530	145552	145574	145597	145619	145641	34	2. 9
26	10.145663	145686	145708	145730	145752	145775	145797	145819	145842	145864	145886	145908	33	3. 13
27	10.145931	145953	145975	145997	146020	146042	146064	146086	146109	146131	146153	146175	32	4. 18
28	10.146198	146220	146242	146264	146287	146309	146331	146353	146376	146398	146420	146442	31	1 = 4
29	10.146465	146487	146509	146532	146554	146576	146598	146621	146643	146665	146687	146710	30	2. 9
30	10.146732	146754	146776	146799	146821	146843	146866	146888	146910	146932	146955	146977	29	3. 13
31	10.146999	147021	147044	147066	147088	147111	147133	147155	147177	147200	147222	147244	28	4. 18
32	10.147266	147289	147311	147333	147356	147378	147400	147422	147445	147467	147489	147512	27	1 = 4
33	10.147534	147556	147578	147601	147623	147645	147668	147690	147712	147734	147757	147779	26	2. 9
34	10.147801	147824	147846	147868	147890	147913	147935	147957	147980	148002	148024	148046	25	3. 13
35	10.148069	148091	148113	148136	148158	148180	148202	148225	148247	148269	148292	148314	24	4. 18
36	10.148336	148359	148381	148403	148425	148448	148470	148492	148515	148537	148559	148582	23	1 = 4
37	10.148604	148626	148648	148671	148693	148715	148738	148760	148782	148805	148827	148849	22	2. 9
38	10.148871	148894	148916	148938	148961	148983	149005	149028	149050	149072	149094	149117	21	3. 13
39	10.149139	149161	149184	149206	149228	149251	149273	149295	149318	149340	149362	149385	20	4. 18
40	10.149407	149429	149451	149474	149496	149518	149541	149563	149585	149608	149630	149652	19	1 = 4
41	10.149675	149697	149719	149742	149764	149786	149809	149831	149853	149876	149898	149920	18	2. 9
42	10.149942	149965	149987	150009	150032	150054	150076	150099	150121	150143	150166	150188	17	3. 13
43	10.150210	150233	150255	150277	150300	150322	150344	150367	150389	150411	150434	150456	16	4. 18
44	10.150478	150501	150523	150545	150568	150590	150612	150635	150657	150679	150702	150724	15	1 = 4
45	10.150746	150769	150791	150813	150836	150858	150880	150903	150925	150947	150970	150992	14	2. 9
46	10.151014	151037	151059	151081	151104	151126	151148	151171	151193	151215	151238	151260	13	3. 13
47	10.151283	151305	151327	151350	151372	151394	151417	151439	151461	151484	151506	151528	12	4. 18
48	10.151551	151573	151595	151618	151640	151662	151685	151707	151730	151752	151774	151797	11	1 = 4
49	10.151819	151841	151864	151886	151908	151931	151953	151975	151998	152020	152043	152065	10	2. 9
50	10.152087	152110	152132	152154	152177	152199	152221	152244	152266	152288	152311	152333	9	3. 13
51	10.152356	152378	152400	152423	152445	152467	152490	152512	152534	152557	152579	152602	8	4. 18
52	10.152624	152646	152669	152691	152713	152736	152758	152781	152803	152825	152848	152870	7	1 = 4
53	10.152892	152915	152937	152960	152982	153004	153027	153049	153071	153094	153116	153139	6	2. 9
54	10.153161	153183	153206	153228	153250	153273	153295	153318	153340	153362	153385	153407	5	3. 13
55	10.153429	153452	153474	153497	153519	153541	153564	153586	153609	153631	153653	153676	4	4. 18
56	10.153698	153720	153743	153765	153788	153810	153832	153855	153877	153900	153922	153944	3	1 = 4
57	10.153967	153989	154012	154034	154056	154079	154101	154124	154146	154168	154191	154213	2	2. 9
58	10.154236	154258	154280	154303	154325	154348	154370	154392	154415	154437	154460	154482	1	3. 13
59	10.154504	154527	154549	154572	154594	154616	154639	154661	154684	154706	154728	154751	0	4. 18
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Propaganda
Co-tangent of 35 degrees, or Tangent of 125 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 55 degrees, or Co-tangent of 145 degrees.													Minutes	Proper parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°			
10. 154773	154796	154818	154840	154863	154885	154908	154930	154952	154975	154997	155020	59	1" = 4	
10. 155042	155064	155087	155109	155132	155154	155177	155199	155221	155244	155266	155289	58	2. 9	
10. 155311	155333	155356	155378	155401	155423	155446	155468	155490	155513	155535	155558	57	3. 13	
10. 155580	155602	155625	155647	155670	155692	155715	155737	155759	155782	155804	155827	56	4. 18	
10. 155849	155872	155894	155916	155939	155961	155984	156006	156029	156051	156073	156096	55	1 = 4	
10. 156118	156141	156163	156186	156208	156230	156253	156275	156298	156320	156343	156365	54	2. 9	
10. 156387	156410	156432	156455	156477	156500	156522	156545	156567	156589	156612	156634	53	3. 13	
10. 156657	156679	156702	156724	156746	156769	156791	156814	156836	156859	156881	156904	52	4. 18	
10. 156926	156948	156971	156993	157016	157038	157061	157083	157106	157128	157150	157173	51	1 = 4	
10. 157195	157218	157240	157263	157285	157308	157330	157353	157375	157397	157420	157442	50	2. 9	
10. 157465	157487	157510	157532	157555	157577	157600	157622	157644	157667	157689	157712	49	3. 13	
10. 157734	157757	157779	157802	157824	157847	157869	157892	157914	157936	157959	157981	48	4. 18	
10. 158004	158026	158049	158071	158094	158116	158139	158161	158184	158206	158228	158251	47	1 = 4	
10. 158273	158296	158318	158341	158363	158386	158408	158431	158453	158476	158498	158521	46	2. 9	
10. 158543	158566	158588	158611	158633	158655	158678	158700	158723	158745	158768	158790	45	3. 13	
10. 158813	158835	158858	158880	158903	158925	158948	158970	158993	159015	159038	159060	44	4. 18	
10. 159083	159105	159128	159150	159173	159195	159217	159240	159262	159285	159307	159330	43	1 = 5	
10. 159352	159375	159397	159420	159442	159465	159487	159510	159532	159555	159577	159600	42	2. 9	
10. 159622	159645	159667	159690	159712	159735	159757	159780	159802	159825	159847	159870	41	3. 14	
10. 159892	159915	159937	159960	159982	160005	160027	160050	160072	160095	160117	160140	40	4. 18	
10. 160162	160185	160207	160230	160252	160275	160297	160320	160342	160365	160387	160410	39	1 = 5	
10. 160433	160455	160477	160500	160522	160545	160567	160590	160612	160635	160657	160680	38	2. 9	
10. 160702	160725	160747	160770	160792	160815	160838	160860	160883	160905	160928	160950	37	3. 14	
10. 160973	160995	161018	161040	161063	161085	161108	161130	161153	161175	161198	161220	36	4. 18	
10. 161243	161265	161288	161310	161333	161356	161378	161401	161423	161446	161468	161491	35	1 = 5	
10. 161513	161536	161558	161581	161603	161626	161648	161671	161693	161716	161739	161761	34	2. 9	
10. 161784	161806	161829	161851	161874	161896	161919	161941	161964	161986	162009	162031	33	3. 14	
10. 162054	162077	162099	162122	162144	162167	162189	162212	162234	162257	162279	162302	32	4. 18	
10. 162324	162347	162369	162392	162415	162437	162460	162482	162505	162527	162550	162572	31	1 = 5	
10. 162595	162618	162640	162663	162685	162708	162730	162753	162775	162798	162821	162843	30	2. 9	
10. 162866	162888	162911	162933	162956	162978	163001	163024	163046	163069	163091	163114	29	3. 14	
10. 163136	163159	163181	163204	163227	163249	163272	163294	163317	163339	163362	163384	28	4. 18	
10. 163407	163430	163452	163475	163497	163520	163542	163565	163588	163610	163633	163655	27	1 = 5	
10. 163678	163700	163723	163745	163768	163791	163813	163836	163858	163881	163904	163926	26	2. 9	
10. 163949	163971	163994	164016	164039	164062	164084	164107	164129	164152	164174	164197	25	3. 14	
10. 164220	164242	164265	164287	164310	164332	164355	164378	164400	164423	164445	164468	24	4. 18	
10. 164491	164513	164536	164558	164581	164603	164626	164649	164671	164694	164716	164739	23	1 = 5	
10. 164762	164784	164807	164829	164852	164875	164897	164920	164942	164965	164987	165010	22	2. 9	
10. 165033	165055	165078	165100	165123	165146	165168	165191	165213	165236	165259	165281	21	3. 14	
10. 165304	165326	165349	165372	165394	165417	165439	165462	165485	165507	165530	165552	20	4. 18	
10. 165573	165596	165618	165641	165663	165686	165708	165731	165753	165776	165798	165821	19	1 = 5	
10. 165846	165869	165892	165914	165937	165959	165982	166005	166027	166050	166072	166095	18	2. 9	
10. 166118	166140	166163	166186	166208	166231	166253	166276	166299	166321	166344	166366	17	3. 14	
10. 166389	166412	166434	166457	166480	166502	166525	166547	166570	166593	166615	166638	16	4. 18	
10. 166661	166683	166706	166728	166751	166774	166796	166819	166842	166864	166887	166909	15	1 = 5	
10. 166932	166955	166977	167000	167023	167045	167068	167090	167113	167136	167158	167181	14	2. 9	
10. 167204	167226	167249	167272	167294	167317	167339	167362	167385	167407	167430	167452	13	3. 14	
10. 167475	167498	167521	167543	167566	167589	167611	167634	167656	167679	167702	167724	12	4. 18	
10. 167747	167770	167792	167815	167838	167860	167883	167906	167928	167951	167974	167996	11	1 = 5	
10. 168019	168041	168064	168087	168109	168132	168155	168177	168200	168223	168245	168268	10	2. 9	
10. 168291	168313	168336	168359	168381	168404	168427	168449	168472	168495	168517	168540	9	3. 14	
10. 168563	168585	168608	168631	168653	168676	168699	168721	168744	168767	168789	168812	8	4. 18	
10. 168835	168857	168880	168903	168925	168948	168971	168993	169016	169039	169061	169084	7	1 = 5	
10. 169107	169129	169152	169175	169197	169220	169243	169265	169288	169311	169333	169356	6	2. 9	
10. 169379	169401	169424	169447	169469	169492	169515	169537	169560	169583	169605	169628	5	3. 14	
10. 169650	169673	169696	169719	169742	169764	169787	169810	169832	169855	169878	169900	4	4. 18	
10. 169923	169946	169968	169991	170014	170036	170059	170082	170105	170127	170150	170173	3	1 = 5	
10. 170195	170218	170241	170263	170286	170309	170331	170354	170377	170400	170422	170445	2	2. 9	
10. 170468	170490	170513	170536	170558	170581	170604	170627	170649	170672	170695	170717	1	3. 14	
10. 170740	170763	170785	170808	170831	170854	170876	170899	170922	170944	170967	170990	0	4. 18	
60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°		Minutes	Proper parts.
Co-tangent of 34 degrees, or Tangent of 124 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 56 degrees, or Co-tangent of 146 degrees.														
Minute	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minute	Proper Parts.
0	10. 171013	171035	171058	171081	171103	171126	171149	171171	171194	171217	171240	171262	59	1"
1	10. 171285	171308	171330	171353	171376	171399	171421	171444	171467	171489	171512	171535	58	2
2	10. 171558	171580	171603	171626	171649	171671	171694	171717	171739	171762	171785	171808	57	3
3	10. 171830	171853	171876	171898	171921	171944	171967	171989	172012	172035	172058	172080	56	4
4	10. 172103	172126	172149	172171	172194	172217	172239	172262	172285	172308	172330	172353	55	1
5	10. 172376	172399	172421	172444	172467	172490	172512	172535	172558	172580	172603	172626	54	2
6	10. 172649	172671	172694	172717	172740	172762	172785	172808	172831	172853	172876	172899	53	3
7	10. 172922	172944	172967	172990	173013	173035	173058	173081	173104	173126	173149	173172	52	4
8	10. 173195	173217	173240	173263	173286	173308	173331	173354	173377	173399	173422	173445	51	1
9	10. 173468	173490	173513	173536	173559	173581	173604	173627	173650	173672	173695	173718	50	2
10	10. 173741	173764	173786	173809	173832	173855	173877	173900	173923	173946	173968	173991	49	3
11	10. 174014	174037	174060	174082	174105	174128	174151	174173	174196	174219	174242	174264	48	4
12	10. 174287	174310	174333	174356	174378	174401	174424	174447	174469	174492	174515	174538	47	1
13	10. 174561	174583	174606	174629	174652	174674	174697	174720	174743	174766	174788	174811	46	2
14	10. 174834	174857	174879	174902	174925	174948	174971	174993	175016	175039	175062	175085	45	3
15	10. 175107	175130	175153	175176	175199	175221	175244	175267	175290	175312	175335	175358	44	4
16	10. 175381	175404	175426	175449	175472	175495	175518	175540	175563	175586	175609	175632	43	1
17	10. 175654	175677	175700	175723	175746	175768	175791	175814	175837	175860	175882	175905	42	2
18	10. 175928	175951	175974	175997	176019	176042	176065	176088	176111	176133	176156	176179	41	3
19	10. 176202	176225	176247	176270	176293	176316	176339	176362	176384	176407	176430	176453	40	4
20	10. 176476	176498	176521	176544	176567	176590	176613	176635	176658	176681	176704	176727	39	1
21	10. 176749	176772	176795	176818	176841	176864	176886	176909	176932	176955	176978	177001	38	2
22	10. 177023	177046	177069	177092	177115	177137	177160	177183	177206	177229	177252	177274	37	3
23	10. 177297	177320	177343	177366	177389	177411	177434	177457	177480	177503	177526	177549	36	4
24	10. 177571	177594	177617	177640	177663	177686	177708	177731	177754	177777	177800	177823	35	1
25	10. 177845	177868	177891	177914	177937	177960	177983	178005	178028	178051	178074	178097	34	2
26	10. 178120	178143	178166	178188	178211	178234	178257	178280	178302	178325	178348	178371	33	3
27	10. 178394	178417	178440	178462	178485	178508	178531	178554	178577	178600	178622	178645	32	4
28	10. 178668	178691	178714	178737	178760	178783	178805	178828	178851	178874	178897	178920	31	1
29	10. 178943	178966	178988	179011	179034	179057	179080	179103	179126	179148	179171	179194	30	2
30	10. 179217	179240	179263	179286	179309	179331	179354	179377	179400	179423	179446	179469	29	3
31	10. 179492	179514	179537	179560	179583	179606	179629	179652	179675	179697	179720	179743	28	4
32	10. 179766	179789	179812	179835	179858	179881	179903	179926	179949	179972	179995	180018	27	1
33	10. 180041	180064	180087	180109	180132	180155	180178	180201	180224	180247	180270	180293	26	2
34	10. 180316	180338	180361	180384	180407	180430	180453	180476	180499	180522	180545	180567	25	3
35	10. 180590	180613	180636	180659	180682	180705	180728	180751	180774	180796	180819	180842	24	4
36	10. 180865	180888	180911	180934	180957	180980	181003	181026	181048	181071	181094	181117	23	1
37	10. 181140	181163	181186	181209	181232	181255	181278	181300	181323	181346	181369	181392	22	2
38	10. 181415	181438	181461	181484	181507	181530	181553	181576	181598	181621	181644	181667	21	3
39	10. 181690	181713	181736	181759	181782	181805	181828	181851	181874	181896	181919	181942	20	4
40	10. 181965	181988	182011	182034	182057	182080	182103	182126	182149	182172	182195	182218	19	1
41	10. 182240	182263	182286	182309	182332	182355	182378	182401	182424	182447	182470	182493	18	2
42	10. 182516	182539	182562	182585	182608	182630	182653	182676	182699	182722	182745	182768	17	3
43	10. 182791	182814	182837	182860	182883	182906	182929	182952	182975	182998	183021	183044	16	4
44	10. 183066	183089	183112	183135	183158	183181	183204	183227	183250	183273	183296	183319	15	1
45	10. 183342	183365	183388	183411	183434	183457	183480	183503	183526	183549	183572	183595	14	2
46	10. 183618	183640	183663	183686	183709	183732	183755	183778	183801	183824	183847	183870	13	3
47	10. 183893	183916	183939	183962	183985	184008	184031	184054	184077	184100	184123	184146	12	4
48	10. 184169	184192	184215	184238	184261	184284	184307	184330	184353	184376	184399	184422	11	1
49	10. 184445	184468	184491	184514	184537	184560	184582	184605	184628	184651	184674	184697	10	2
50	10. 184720	184743	184766	184789	184812	184835	184858	184881	184904	184927	184950	184973	9	3
51	10. 184996	185019	185042	185065	185088	185111	185134	185157	185180	185203	185226	185249	8	4
52	10. 185272	185295	185318	185341	185364	185387	185410	185433	185456	185479	185502	185525	7	1
53	10. 185548	185571	185594	185617	185640	185663	185686	185709	185732	185755	185778	185801	6	2
54	10. 185824	185847	185870	185893	185916	185939	185963	185986	186009	186032	186055	186078	5	3
55	10. 186101	186124	186147	186170	186193	186216	186239	186262	186285	186308	186331	186354	4	4
56	10. 186377	186400	186423	186446	186469	186492	186515	186538	186561	186584	186607	186630	3	1
57	10. 186653	186676	186699	186722	186745	186768	186791	186814	186837	186860	186884	186907	2	2
58	10. 186930	186953	186976	186999	187022	187045	187068	187091	187114	187137	187160	187183	1	3
59	10. 187206	187229	187252	187275	187298	187321	187344	187367	187390	187413	187436	187459	0	4
Minute	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minute	Proper Parts.
Co-tangent of 33 degrees, or Tangent of 123 degrees.														

LOGARITHMIC TANGENTS.

Minutes	Tangent of 58 degrees, or Co-tangent of 148 degrees.												Minutes	Proper parts
	0	5	10	15	20	25	30	35	40	45	50	55		
0	10.204211	204234	204258	204281	204304	204328	204351	204375	204398	204422	204445	204468	59	1 =
1	10.204492	204515	204539	204562	204586	204609	204632	204656	204679	204703	204726	204750	58	2 =
2	10.204773	204797	204820	204843	204867	204890	204914	204937	204961	204984	205008	205031	57	3 =
3	10.205054	205078	205101	205125	205148	205172	205195	205219	205242	205265	205289	205312	56	4 =
4	10.205336	205359	205383	205406	205430	205453	205477	205500	205523	205547	205570	205594	55	1 =
5	10.205617	205641	205664	205688	205711	205735	205758	205782	205805	205828	205852	205875	54	2 =
6	10.205899	205922	205946	205969	205993	206016	206040	206063	206087	206110	206134	206157	53	3 =
7	10.206180	206204	206227	206251	206274	206298	206321	206345	206368	206392	206415	206439	52	4 =
8	10.206462	206486	206509	206533	206556	206580	206603	206627	206650	206674	206697	206721	51	1 =
9	10.206744	206767	206791	206814	206838	206861	206885	206908	206932	206955	206979	207002	50	2 =
10	10.207026	207049	207073	207096	207120	207143	207167	207190	207214	207237	207261	207284	49	3 =
11	10.207308	207331	207355	207378	207402	207425	207449	207472	207496	207519	207543	207566	48	4 =
12	10.207590	207613	207637	207660	207684	207707	207731	207754	207778	207801	207825	207848	47	1 =
13	10.207872	207895	207919	207943	207966	207990	208013	208037	208060	208084	208107	208131	46	2 =
14	10.208154	208178	208201	208225	208248	208272	208295	208319	208342	208366	208389	208413	45	3 =
15	10.208436	208460	208484	208507	208531	208554	208578	208601	208625	208648	208672	208695	44	4 =
16	10.208719	208742	208766	208789	208813	208837	208860	208884	208907	208931	208954	208978	43	1 =
17	10.209001	209025	209048	209072	209095	209119	209143	209166	209190	209213	209237	209260	42	2 =
18	10.209284	209307	209331	209354	209378	209402	209425	209449	209472	209496	209519	209543	41	3 =
19	10.209566	209590	209614	209637	209661	209684	209708	209731	209755	209778	209802	209826	40	4 =
20	10.209849	209873	209896	209920	209943	209967	209990	210014	210038	210061	210085	210108	39	1 =
21	10.210132	210155	210179	210203	210226	210250	210273	210297	210320	210344	210368	210391	38	2 =
22	10.210415	210438	210462	210485	210509	210533	210556	210580	210603	210627	210651	210674	37	3 =
23	10.210698	210721	210745	210768	210792	210816	210839	210863	210886	210910	210934	210957	36	4 =
24	10.210981	211004	211028	211051	211075	211099	211122	211146	211169	211193	211217	211240	35	1 =
25	10.211264	211287	211311	211335	211358	211382	211405	211429	211453	211476	211500	211523	34	2 =
26	10.211547	211571	211594	211618	211641	211665	211689	211712	211736	211759	211783	211807	33	3 =
27	10.211830	211854	211878	211901	211925	211948	211972	211996	212019	212043	212066	212090	32	4 =
28	10.212114	212137	212161	212185	212208	212232	212255	212279	212303	212326	212350	212373	31	1 =
29	10.212397	212421	212444	212468	212492	212515	212539	212562	212586	212610	212633	212657	30	2 =
30	10.212681	212704	212728	212752	212775	212799	212822	212846	212870	212893	212917	212941	29	3 =
31	10.212964	212988	213012	213035	213059	213082	213106	213130	213153	213177	213201	213224	28	4 =
32	10.213248	213272	213295	213319	213343	213366	213390	213413	213437	213461	213484	213508	27	1 =
33	10.213532	213555	213579	213603	213626	213650	213674	213697	213721	213745	213768	213792	26	2 =
34	10.213816	213839	213863	213887	213910	213934	213958	213981	214005	214029	214052	214076	25	3 =
35	10.214100	214123	214147	214171	214194	214218	214242	214265	214289	214313	214336	214360	24	4 =
36	10.214384	214407	214431	214455	214478	214502	214526	214549	214573	214597	214620	214644	23	1 =
37	10.214668	214691	214715	214739	214762	214786	214810	214833	214857	214881	214905	214928	22	2 =
38	10.214952	214976	214999	215023	215047	215070	215094	215118	215141	215165	215189	215212	21	3 =
39	10.215236	215260	215284	215307	215331	215355	215378	215402	215426	215449	215473	215497	20	4 =
40	10.215521	215544	215568	215592	215615	215639	215663	215686	215710	215734	215758	215781	19	1 =
41	10.215805	215829	215852	215876	215900	215924	215947	215971	215995	216018	216042	216066	18	2 =
42	10.216090	216113	216137	216161	216184	216208	216232	216256	216279	216303	216327	216350	17	3 =
43	10.216374	216398	216422	216445	216469	216493	216517	216540	216564	216588	216611	216635	16	4 =
44	10.216659	216683	216706	216730	216754	216778	216801	216825	216849	216873	216897	216920	15	1 =
45	10.216944	216967	216991	217015	217039	217062	217086	217110	217134	217157	217181	217205	14	2 =
46	10.217229	217252	217276	217300	217324	217347	217371	217395	217419	217442	217466	217490	13	3 =
47	10.217514	217537	217561	217585	217609	217632	217656	217680	217704	217727	217751	217775	12	4 =
48	10.217799	217822	217846	217870	217894	217917	217941	217965	217989	218013	218036	218060	11	1 =
49	10.218084	218108	218131	218155	218179	218203	218226	218250	218274	218298	218321	218345	10	2 =
50	10.218369	218393	218417	218440	218464	218488	218512	218535	218559	218583	218607	218631	9	3 =
51	10.218654	218678	218702	218726	218749	218773	218797	218821	218845	218868	218892	218916	8	4 =
52	10.218940	218964	218987	219011	219035	219059	219083	219106	219130	219154	219178	219201	7	1 =
53	10.219225	219249	219273	219297	219320	219344	219368	219392	219416	219439	219463	219487	6	2 =
54	10.219511	219535	219558	219582	219606	219630	219654	219677	219701	219725	219749	219773	5	3 =
55	10.219797	219820	219844	219868	219892	219916	219939	219963	219987	220011	220035	220058	4	4 =
56	10.220082	220106	220130	220154	220178	220201	220225	220249	220273	220297	220320	220344	3	1 =
57	10.220368	220392	220416	220440	220463	220487	220511	220535	220559	220583	220606	220630	2	2 =
58	10.220654	220678	220702	220726	220749	220773	220797	220821	220845	220869	220892	220916	1	3 =
59	10.220940	220964	220988	221012	221035	221059	221083	221107	221131	221155	221179	221202	0	4 =
Minutes	60	55	50	45	40	35	30	25	20	15	10	5	Minutes	Proper parts
Co-tangent of 31 degrees, or Tangent of 121 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 59 degrees, or Co-tangent of 149 degrees.													Minutes	Proport. parts.
59°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	59°	50°	Minutes	Proport. parts.
1226	221250	221274	221298	221322	221345	221369	221393	221417	221441	221465	221489	59	1" = 5	
1512	221536	221560	221584	221608	221632	221656	221679	221703	221727	221751	221775	58	2. 10	
1799	221823	221846	221870	221894	221918	221942	221966	221990	222013	222037	222061	57	3. 14	
2085	222109	222133	222157	222181	222204	222228	222252	222276	222300	222324	222348	56	4. 19	
2372	222395	222419	222443	222467	222491	222515	222539	222563	222586	222610	222634	55	1 = 5	
2658	222682	222706	222730	222754	222778	222801	222825	222849	222873	222897	222921	54	2. 10	
2945	222960	222993	223016	223040	223064	223088	223112	223136	223160	223184	223208	53	3. 14	
3231	223255	223279	223303	223327	223351	223375	223399	223423	223447	223471	223494	52	4. 19	
3518	223542	223566	223590	223614	223638	223662	223686	223710	223733	223757	223781	51	1 = 5	
3805	223829	223853	223877	223901	223925	223949	223973	223997	224020	224044	224068	50	2. 10	
4092	224116	224140	224164	224188	224212	224236	224260	224284	224308	224331	224355	49	3. 14	
4379	224403	224427	224451	224475	224499	224523	224547	224571	224595	224619	224643	48	4. 19	
4667	224690	224714	224738	224762	224786	224810	224834	224858	224882	224906	224930	47	1 = 5	
4954	224978	225002	225026	225050	225074	225097	225121	225145	225169	225193	225217	46	2. 10	
5241	225265	225289	225313	225337	225361	225385	225409	225433	225457	225481	225505	45	3. 14	
5529	225553	225577	225600	225624	225648	225672	225696	225720	225744	225768	225792	44	4. 19	
5816	225840	225864	225888	225912	225936	225960	225984	226008	226032	226056	226080	43	1 = 5	
6104	226128	226152	226176	226200	226224	226248	226272	226296	226320	226344	226368	42	2. 10	
6392	226416	226440	226464	226488	226511	226535	226559	226583	226607	226631	226655	41	3. 14	
6679	226703	226727	226751	226775	226799	226823	226847	226871	226895	226919	226943	40	4. 19	
6967	226991	227015	227039	227063	227087	227111	227135	227159	227183	227207	227231	39	1 = 5	
7255	227279	227303	227327	227351	227375	227399	227423	227447	227471	227495	227519	38	2. 10	
7543	227567	227591	227615	227639	227663	227687	227711	227735	227759	227783	227807	37	3. 14	
7832	227856	227880	227904	227928	227952	227976	228000	228024	228048	228072	228096	36	4. 19	
8120	228144	228168	228192	228216	228240	228264	228288	228312	228336	228360	228384	35	1 = 5	
8408	228432	228456	228480	228504	228528	228552	228576	228600	228624	228648	228672	34	2. 10	
8697	228721	228745	228769	228793	228817	228841	228865	228889	228913	228937	228961	33	3. 14	
8985	229009	229033	229057	229081	229105	229129	229153	229177	229201	229225	229249	32	4. 19	
9274	229298	229322	229346	229370	229394	229418	229442	229466	229490	229514	229538	31	1 = 5	
9563	229587	229611	229635	229659	229683	229707	229731	229755	229779	229803	229827	30	2. 10	
9851	229876	229900	229924	229948	229972	229996	230020	230044	230068	230092	230116	29	3. 14	
10140	230164	230188	230212	230236	230260	230284	230308	230332	230356	230380	230404	28	4. 19	
10429	230454	230478	230502	230526	230550	230574	230598	230622	230646	230670	230694	27	1 = 5	
10719	230743	230767	230791	230815	230839	230863	230887	230911	230935	230959	230983	26	2. 10	
11008	231032	231056	231080	231104	231128	231152	231176	231200	231224	231248	231272	25	3. 14	
11297	231321	231345	231369	231393	231417	231441	231465	231489	231513	231537	231561	24	4. 19	
11586	231611	231635	231659	231683	231707	231731	231755	231779	231803	231827	231851	23	1 = 5	
11876	231924	231948	231972	231996	232020	232044	232068	232092	232116	232140	232164	22	2. 10	
12166	232190	232214	232238	232262	232286	232310	232334	232358	232382	232406	232430	21	3. 14	
12455	232479	232503	232527	232551	232575	232600	232624	232648	232672	232696	232720	20	4. 19	
12745	232769	232793	232817	232841	232865	232889	232913	232937	232961	232985	233009	19	1 = 5	
13035	233059	233083	233107	233131	233155	233179	233203	233227	233251	233275	233299	18	2. 10	
13325	233349	233373	233397	233421	233445	233469	233493	233517	233541	233565	233589	17	3. 14	
13615	233639	233663	233687	233711	233735	233759	233783	233807	233831	233855	233879	16	4. 19	
13905	233929	233953	233977	234001	234025	234049	234073	234097	234121	234145	234169	15	1 = 5	
14195	234219	234243	234267	234291	234315	234339	234363	234387	234411	234435	234459	14	2. 10	
14485	234510	234534	234558	234582	234606	234630	234654	234678	234702	234726	234750	13	3. 14	
14775	234800	234824	234848	234872	234896	234920	234944	234968	234992	235016	235040	12	4. 19	
15065	235091	235115	235139	235163	235187	235211	235235	235259	235283	235307	235331	11	1 = 5	
15355	235381	235405	235429	235453	235477	235501	235525	235549	235573	235597	235621	10	2. 10	
15645	235672	235696	235720	235744	235768	235792	235816	235840	235864	235888	235912	9	3. 14	
15935	235963	235987	236011	236035	236059	236083	236107	236131	236155	236179	236203	8	4. 19	
16225	236254	236278	236302	236326	236350	236374	236398	236422	236446	236470	236494	7	1 = 5	
16515	236545	236569	236593	236617	236641	236665	236689	236713	236737	236761	236785	6	2. 10	
16805	236836	236860	236884	236908	236932	236956	236980	237004	237028	237052	237076	5	3. 14	
17095	237127	237151	237175	237199	237223	237247	237271	237295	237319	237343	237367	4	4. 19	
17385	237419	237443	237467	237491	237515	237539	237563	237587	237611	237635	237659	3	1 = 5	
17675	237710	237734	237758	237782	237806	237830	237854	237878	237902	237926	237950	2	2. 10	
17965	238002	238026	238050	238074	238098	238122	238146	238170	238194	238218	238242	1	3. 14	
18255	238293	238317	238341	238365	238389	238413	238437	238461	238485	238509	238533	0	4. 19	
55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	55°	50°	Minutes	Proport. parts.
Co-tangent of 30 degrees, or Tangent of 120 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 60 degrees, or Co-tangent of 150 degrees.														Minutes	Proport.
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proport.	
0	10. 238561	238585	238609	238634	238658	238682	238706	238731	238755	238779	238804	238828	59	1 =	
1	10. 238852	238877	238901	238925	238950	238974	238998	239023	239047	239071	239096	239120	58	2 =	
2	10. 239144	239169	239193	239217	239242	239266	239290	239315	239339	239363	239388	239412	57	3 =	
3	10. 239436	239461	239485	239509	239534	239558	239582	239607	239631	239655	239680	239704	56	4 =	
4	10. 239728	239753	239777	239801	239826	239850	239874	239899	239923	239947	239972	239996	55	1 =	
5	10. 240021	240045	240069	240094	240118	240142	240167	240191	240215	240240	240264	240288	54	2 =	
6	10. 240313	240337	240362	240386	240410	240435	240459	240483	240508	240532	240556	240581	53	3 =	
7	10. 240605	240630	240654	240678	240703	240727	240751	240776	240800	240825	240849	240873	52	4 =	
8	10. 240898	240922	240946	240971	240995	241020	241044	241068	241093	241117	241142	241166	51	1 =	
9	10. 241199	241215	241239	241263	241288	241312	241337	241361	241385	241410	241434	241459	50	2 =	
10	10. 241483	241507	241532	241556	241581	241605	241629	241654	241678	241703	241727	241751	49	3 =	
11	10. 241776	241800	241825	241849	241873	241898	241922	241947	241971	241995	242020	242044	48	4 =	
12	10. 242069	242093	242117	242142	242166	242191	242215	242240	242264	242288	242313	242337	47	1 =	
13	10. 242362	242386	242411	242435	242459	242484	242508	242533	242557	242581	242606	242630	46	2 =	
14	10. 242655	242679	242704	242728	242752	242777	242801	242826	242850	242875	242899	242923	45	3 =	
15	10. 242948	242972	242997	243021	243046	243070	243095	243119	243143	243168	243192	243217	44	4 =	
16	10. 243241	243266	243290	243315	243339	243363	243388	243412	243437	243461	243486	243510	43	1 =	
17	10. 243535	243559	243584	243608	243633	243657	243681	243706	243730	243755	243779	243804	42	2 =	
18	10. 243828	243853	243877	243901	243926	243950	243975	243999	244024	244048	244073	244097	41	3 =	
19	10. 244122	244146	244171	244195	244220	244244	244269	244293	244317	244342	244366	244391	40	4 =	
20	10. 244415	244440	244464	244489	244513	244538	244562	244587	244611	244636	244660	244685	39	1 =	
21	10. 244709	244734	244758	244783	244807	244832	244856	244881	244905	244930	244954	244979	38	2 =	
22	10. 245003	245028	245052	245077	245101	245126	245150	245175	245199	245224	245248	245273	37	3 =	
23	10. 245297	245322	245346	245371	245395	245420	245444	245469	245493	245518	245542	245567	36	4 =	
24	10. 245591	245616	245640	245665	245689	245714	245738	245763	245787	245812	245836	245861	35	1 =	
25	10. 245885	245910	245934	245959	245983	246008	246033	246057	246082	246106	246131	246155	34	2 =	
26	10. 246180	246204	246229	246253	246278	246302	246327	246351	246376	246400	246425	246450	33	3 =	
27	10. 246474	246499	246523	246548	246572	246597	246621	246646	246670	246695	246719	246744	32	4 =	
28	10. 246769	246793	246818	246842	246867	246891	246916	246940	246965	246990	247014	247039	31	1 =	
29	10. 247063	247088	247112	247137	247161	247186	247211	247235	247260	247284	247309	247333	30	2 =	
30	10. 247358	247382	247407	247432	247456	247481	247505	247530	247554	247579	247604	247628	29	3 =	
31	10. 247653	247677	247702	247726	247751	247776	247800	247825	247849	247874	247898	247923	28	4 =	
32	10. 247948	247972	247997	248021	248046	248071	248095	248120	248144	248169	248193	248218	27	1 =	
33	10. 248243	248267	248292	248316	248341	248366	248390	248415	248439	248464	248488	248513	26	2 =	
34	10. 248538	248562	248587	248612	248636	248661	248685	248710	248735	248759	248784	248808	25	3 =	
35	10. 248833	248858	248882	248907	248931	248956	248981	249005	249030	249055	249079	249104	24	4 =	
36	10. 249128	249153	249178	249202	249227	249251	249276	249301	249325	249350	249375	249399	23	1 =	
37	10. 249424	249448	249473	249498	249522	249547	249572	249596	249621	249645	249670	249695	22	2 =	
38	10. 249719	249744	249769	249793	249818	249843	249867	249892	249916	249941	249966	249990	21	3 =	
39	10. 250015	250040	250064	250089	250114	250138	250163	250187	250212	250237	250261	250286	20	4 =	
40	10. 250311	250335	250360	250385	250409	250434	250459	250483	250508	250533	250557	250582	19	1 =	
41	10. 250607	250631	250656	250681	250705	250730	250755	250779	250804	250829	250853	250878	18	2 =	
42	10. 250903	250927	250952	250977	251001	251026	251051	251075	251100	251125	251149	251174	17	3 =	
43	10. 251199	251223	251248	251273	251297	251322	251347	251371	251396	251421	251445	251470	16	4 =	
44	10. 251495	251519	251544	251569	251594	251618	251643	251668	251692	251717	251742	251766	15	1 =	
45	10. 251791	251816	251840	251865	251890	251915	251939	251964	251989	252013	252038	252063	14	2 =	
46	10. 252087	252112	252137	252162	252186	252211	252236	252260	252285	252310	252335	252359	13	3 =	
47	10. 252384	252409	252433	252458	252483	252507	252532	252557	252582	252606	252631	252656	12	4 =	
48	10. 252681	252705	252730	252755	252779	252804	252829	252854	252878	252903	252928	252952	11	1 =	
49	10. 252977	253002	253027	253051	253076	253101	253126	253150	253175	253200	253225	253249	10	2 =	
50	10. 253274	253299	253324	253348	253373	253398	253422	253447	253472	253497	253521	253546	9	3 =	
51	10. 253571	253596	253620	253645	253670	253695	253719	253744	253769	253794	253818	253843	8	4 =	
52	10. 253868	253893	253917	253942	253967	253992	254017	254041	254066	254091	254116	254140	7	1 =	
53	10. 254165	254190	254215	254239	254264	254289	254314	254338	254363	254388	254413	254438	6	2 =	
54	10. 254462	254487	254512	254537	254561	254586	254611	254636	254661	254685	254710	254735	5	3 =	
55	10. 254760	254784	254809	254834	254859	254884	254908	254933	254958	254983	255008	255032	4	4 =	
56	10. 255057	255082	255107	255131	255156	255181	255206	255231	255255	255280	255305	255330	3	1 =	
57	10. 255355	255379	255404	255429	255454	255479	255503	255528	255553	255578	255603	255628	2	2 =	
58	10. 255652	255677	255702	255727	255752	255776	255801	255826	255851	255876	255900	255925	1	3 =	
59	10. 255950	255975	256000	256025	256049	256074	256099	256124	256149	256173	256198	256223	0	4 =	
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport.	
Co-tangent of 29 degrees, or Tangent of 119 degrees.															

LOGARITHMIC TANGENTS.

Tangent of 61 degrees, or Co-tangent of 151 degrees.											Minute	Proper parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
48	256273	256298	256322	256347	256372	256397	256422	256447	256471	256496	59	1" = 5
46	256571	256596	256620	256645	256670	256695	256720	256745	256770	256794	58	2. 10
44	256869	256894	256919	256943	256968	256993	257018	257043	257068	257093	57	3. 15
42	257167	257192	257217	257242	257267	257291	257316	257341	257366	257391	56	4. 20
41	257465	257490	257515	257540	257565	257590	257615	257640	257664	257689	55	1" = 5
39	257764	257789	257814	257839	257863	257888	257913	257938	257963	257988	54	2. 10
38	258062	258087	258112	258137	258162	258187	258212	258237	258262	258286	53	3. 15
36	258361	258386	258411	258436	258461	258486	258510	258535	258560	258585	52	4. 20
35	258660	258685	258710	258735	258759	258784	258809	258834	258859	258884	51	1" = 5
34	258959	258984	259009	259033	259058	259083	259108	259133	259158	259183	50	2. 10
33	259258	259283	259308	259332	259357	259382	259407	259432	259457	259482	49	3. 15
32	259557	259582	259607	259632	259656	259681	259706	259731	259756	259781	48	4. 20
31	259856	259881	259906	259931	259956	259981	260006	260031	260056	260080	47	1" = 5
30	260155	260180	260205	260230	260255	260280	260305	260330	260355	260380	46	2. 10
29	260455	260480	260505	260530	260555	260579	260604	260629	260654	260679	45	3. 15
28	260754	260779	260804	260829	260854	260879	260904	260929	260954	260979	44	4. 20
27	261054	261079	261104	261129	261154	261179	261204	261229	261254	261279	43	1" = 5
26	261354	261379	261404	261429	261454	261479	261504	261529	261554	261579	42	2. 10
25	261654	261679	261703	261728	261753	261778	261803	261828	261853	261878	41	3. 15
24	261953	261978	262003	262028	262053	262079	262104	262129	262154	262179	40	4. 20
23	262254	262279	262304	262329	262354	262379	262404	262429	262454	262479	39	1" = 5
22	262554	262579	262604	262629	262654	262679	262704	262729	262754	262779	38	2. 10
21	262854	262879	262904	262929	262954	262979	263004	263029	263054	263079	37	3. 15
20	263155	263180	263205	263230	263255	263280	263305	263330	263355	263380	36	4. 20
19	263455	263480	263505	263530	263555	263580	263605	263630	263655	263681	35	1" = 5
18	263756	263781	263806	263831	263856	263881	263906	263931	263956	263981	34	2. 10
17	264056	264082	264107	264132	264157	264182	264207	264232	264257	264282	33	3. 15
16	264357	264382	264408	264433	264458	264483	264508	264533	264558	264583	32	4. 20
15	264658	264683	264709	264734	264759	264784	264809	264834	264859	264884	31	1" = 5
14	264959	264985	265010	265035	265060	265085	265110	265135	265160	265185	30	2. 10
13	265261	265286	265311	265336	265361	265386	265411	265436	265462	265487	29	3. 15
12	265562	265587	265612	265637	265662	265688	265713	265738	265763	265788	28	4. 20
11	265863	265889	265914	265939	265964	265989	266014	266039	266064	266090	27	1" = 5
10	266165	266190	266215	266240	266266	266291	266316	266341	266366	266391	26	2. 10
9	266466	266492	266517	266542	266567	266592	266618	266643	266668	266693	25	3. 15
8	266768	266794	266819	266844	266869	266894	266919	266945	266970	266995	24	4. 20
7	267070	267096	267121	267146	267171	267196	267221	267247	267272	267297	23	1" = 5
6	267372	267398	267423	267448	267473	267498	267523	267549	267574	267599	22	2. 10
5	267675	267700	267725	267750	267775	267800	267826	267851	267876	267901	21	3. 15
4	267977	268002	268027	268052	268078	268103	268128	268153	268178	268204	20	4. 20
3	268279	268304	268330	268355	268380	268405	268430	268456	268481	268506	19	1" = 5
2	268582	268607	268632	268657	268682	268708	268733	268758	268783	268809	18	2. 10
1	268884	268909	268935	268960	268985	269010	269036	269061	269086	269111	17	3. 15
0	269187	269212	269237	269263	269288	269313	269338	269364	269389	269414	16	4. 20
55	269490	269515	269540	269565	269591	269616	269641	269666	269692	269717	15	1" = 5
54	269793	269818	269843	269868	269894	269919	269944	269969	269995	270020	14	2. 10
53	270096	270121	270146	270172	270197	270222	270247	270273	270298	270323	13	3. 15
52	270399	270424	270449	270475	270500	270525	270551	270576	270601	270626	12	4. 20
51	270702	270728	270753	270778	270803	270829	270854	270879	270904	270930	11	1" = 5
50	271006	271031	271056	271082	271107	271132	271157	271183	271208	271233	10	2. 10
49	271309	271334	271360	271385	271410	271436	271461	271486	271512	271537	9	3. 15
48	271613	271638	271663	271689	271714	271739	271765	271790	271815	271841	8	4. 20
47	271917	271942	271967	271993	272018	272043	272069	272094	272119	272144	7	1" = 5
46	272220	272246	272271	272296	272322	272347	272372	272398	272423	272448	6	2. 10
45	272524	272550	272575	272600	272626	272651	272677	272702	272727	272753	5	3. 15
44	272829	272854	272879	272905	272930	272955	272981	273006	273031	273057	4	4. 20
43	273133	273158	273184	273209	273234	273260	273285	273310	273336	273361	3	1" = 5
42	273437	273463	273488	273513	273539	273564	273589	273615	273640	273666	2	2. 10
41	273742	273767	273792	273818	273843	273869	273894	273919	273945	273970	1	3. 15
40	274046	274072	274097	274122	274148	274173	274199	274224	274249	274275	0	4. 20
39	274380	274405	274431	274456	274481	274507	274532	274557	274583	274608		
38	274702	274727	274753	274778	274803	274829	274854	274879	274904	274930		
37	275032	275057	275083	275108	275133	275158	275183	275208	275233	275259		
36	275389	275414	275439	275464	275489	275514	275539	275564	275589	275614		
35	275739	275764	275789	275814	275839	275864	275889	275914	275939	275964		
34	276114	276139	276164	276189	276214	276239	276264	276289	276314	276339		
33	276514	276539	276564	276589	276614	276639	276664	276689	276714	276739		
32	276939	276964	276989	277014	277039	277064	277089	277114	277139	277164		
31	277389	277414	277439	277464	277489	277514	277539	277564	277589	277614		
30	277839	277864	277889	277914	277939	277964	277989	278014	278039	278064		
29	278314	278339	278364	278389	278414	278439	278464	278489	278514	278539		
28	278814	278839	278864	278889	278914	278939	278964	278989	279014	279039		
27	279339	279364	279389	279414	279439	279464	279489	279514	279539	279564		
26	279889	279914	279939	279964	279989	280014	280039	280064	280089	280114		
25	280439	280464	280489	280514	280539	280564	280589	280614	280639	280664		
24	280989	281014	281039	281064	281089	281114	281139	281164	281189	281214		
23	281539	281564	281589	281614	281639	281664	281689	281714	281739	281764		
22	282114	282139	282164	282189	282214	282239	282264	282289	282314	282339		
21	282689	282714	282739	282764	282789	282814	282839	282864	282889	282914		
20	283239	283264	283289	283314	283339	283364	283389	283414	283439	283464		
19	283814	283839	283864	283889	283914	283939	283964	283989	284014	284039		
18	284389	284414	284439	284464	284489	284514	284539	284564	284589	284614		
17	284989	285014	285039	285064	285089	285114	285139	285164	285189	285214		
16	285589	285614	285639	285664	285689	285714	285739	285764	285789	285814		
15	286189	286214	286239	286264	286289	286314	286339	286364	286389	286414		
14	286814	286839	286864	286889	286914	286939	286964	286989	287014	287039		
13	287239	287264	287289	287314	287339	287364	287389	287414	287439	287464		
12	287839	287864	287889	287914	287939	287964	287989	288014	288039	288064		
11	288439	288464										

LOGARITHMIC TANGENTS.

Tangent of 62 degrees, or Co-tangent of 152 degrees.													
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes
0	10.274326	274351	274376	274402	274427	274453	274478	274503	274529	274554	274580	274605	59
1	10.274630	274656	274681	274707	274732	274757	274783	274808	274834	274859	274885	274910	58
2	10.274935	274961	274986	275012	275037	275062	275088	275113	275139	275164	275190	275215	57
3	10.275240	275266	275291	275317	275342	275368	275393	275418	275444	275469	275495	275520	56
4	10.275546	275571	275596	275622	275647	275673	275698	275724	275749	275775	275800	275825	55
5	10.275851	275876	275902	275927	275953	275978	276004	276029	276055	276080	276105	276131	54
6	10.276156	276182	276207	276233	276258	276284	276309	276335	276360	276385	276411	276436	53
7	10.276462	276487	276513	276538	276564	276589	276615	276640	276666	276691	276717	276742	52
8	10.276768	276793	276819	276844	276869	276895	276920	276946	276971	276997	277022	277048	51
9	10.277073	277099	277124	277150	277175	277201	277226	277252	277277	277303	277328	277354	50
10	10.277379	277405	277430	277456	277481	277507	277532	277558	277583	277609	277634	277660	49
11	10.277685	277711	277736	277762	277787	277813	277838	277864	277889	277915	277940	277966	48
12	10.277991	278017	278042	278068	278094	278119	278145	278170	278196	278221	278247	278272	47
13	10.278298	278323	278349	278374	278400	278425	278451	278476	278502	278528	278553	278579	46
14	10.278604	278630	278655	278681	278706	278732	278757	278783	278808	278834	278860	278885	45
15	10.278911	278936	278962	278987	279013	279038	279064	279089	279115	279141	279166	279192	44
16	10.279217	279243	279268	279294	279320	279345	279371	279396	279422	279447	279473	279498	43
17	10.279524	279550	279575	279601	279626	279652	279677	279703	279729	279754	279780	279805	42
18	10.279831	279857	279882	279908	279933	279959	279984	280010	280036	280061	280087	280112	41
19	10.280138	280164	280189	280215	280240	280266	280292	280317	280343	280368	280394	280419	40
20	10.280445	280471	280496	280522	280547	280573	280599	280624	280650	280676	280701	280727	39
21	10.280752	280778	280804	280829	280855	280880	280906	280932	280957	280983	281008	281034	38
22	10.281060	281085	281111	281137	281162	281188	281213	281239	281265	281290	281316	281342	37
23	10.281367	281393	281418	281444	281470	281495	281521	281547	281572	281598	281624	281649	36
24	10.281675	281701	281726	281752	281777	281803	281829	281854	281880	281906	281931	281957	35
25	10.281983	282008	282034	282060	282085	282111	282137	282162	282188	282214	282239	282265	34
26	10.282291	282316	282342	282367	282393	282419	282444	282470	282496	282521	282547	282573	33
27	10.282599	282624	282650	282676	282701	282727	282753	282778	282804	282830	282855	282881	32
28	10.282907	282932	282958	282984	283009	283035	283061	283086	283112	283138	283164	283189	31
29	10.283215	283241	283266	283292	283318	283343	283369	283395	283420	283446	283472	283498	30
30	10.283523	283549	283575	283600	283626	283652	283678	283703	283729	283755	283780	283806	29
31	10.283832	283857	283883	283909	283935	283960	283986	284012	284038	284063	284089	284115	28
32	10.284140	284166	284192	284218	284243	284269	284295	284321	284346	284372	284398	284423	27
33	10.284449	284475	284501	284526	284552	284578	284604	284629	284655	284681	284707	284732	26
34	10.284758	284784	284810	284835	284861	284887	284913	284938	284964	284990	285016	285041	25
35	10.285067	285093	285119	285144	285170	285196	285222	285247	285273	285299	285325	285350	24
36	10.285376	285402	285428	285454	285479	285505	285531	285557	285582	285608	285634	285660	23
37	10.285685	285711	285737	285763	285789	285814	285840	285866	285892	285918	285943	285969	22
38	10.285995	286021	286046	286072	286098	286124	286150	286175	286201	286227	286253	286279	21
39	10.286304	286330	286356	286382	286408	286433	286459	286485	286511	286537	286562	286588	20
40	10.286614	286640	286666	286691	286717	286743	286769	286795	286821	286846	286872	286898	19
41	10.286924	286950	286975	287001	287027	287053	287079	287105	287130	287156	287182	287208	18
42	10.287234	287260	287285	287311	287337	287363	287389	287415	287440	287466	287492	287518	17
43	10.287544	287570	287595	287621	287647	287673	287699	287725	287750	287776	287802	287828	16
44	10.287854	287880	287906	287931	287957	287983	288009	288035	288061	288087	288112	288138	15
45	10.288164	288190	288216	288242	288268	288294	288319	288345	288371	288397	288423	288449	14
46	10.288475	288500	288526	288552	288578	288604	288630	288656	288682	288707	288733	288759	13
47	10.288785	288811	288837	288863	288889	288915	288940	288966	288992	289018	289044	289070	12
48	10.289096	289122	289148	289174	289199	289225	289251	289277	289303	289329	289355	289381	11
49	10.289407	289433	289458	289484	289510	289536	289562	289588	289614	289640	289666	289692	10
50	10.289718	289743	289769	289795	289821	289847	289873	289899	289925	289951	289977	290003	9
51	10.290029	290055	290080	290106	290132	290158	290184	290210	290236	290262	290288	290314	8
52	10.290340	290366	290392	290418	290444	290470	290495	290521	290547	290573	290599	290625	7
53	10.290651	290677	290703	290729	290755	290781	290807	290833	290859	290885	290911	290937	6
54	10.290963	290989	291015	291040	291066	291092	291118	291144	291170	291196	291222	291248	5
55	10.291274	291300	291326	291352	291378	291404	291430	291456	291482	291508	291534	291560	4
56	10.291586	291612	291638	291664	291690	291716	291742	291768	291794	291820	291846	291872	3
57	10.291898	291924	291950	291976	292002	292028	292054	292080	292106	292132	292158	292184	2
58	10.292210	292236	292262	292288	292314	292340	292366	292392	292418	292444	292470	292496	1
59	10.292522	292548	292574	292600	292626	292652	292678	292704	292730	292756	292782	292808	0
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'													
Co-tangent of 27 degrees, or Tangent of 117 degrees.													
Minutes													Minutes

Tangent of 63 degrees, or Co-tangent of 153 degrees.													Minutes	Proport. parts.
5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°				
834	292866	292886	292912	292938	292964	292990	293016	293042	293068	293094	293120	59	1" = 5	
146	293172	293199	293225	293251	293277	293303	293329	293355	293381	293407	293433	58	2. 10	
459	293485	293511	293537	293563	293589	293615	293641	293667	293693	293719	293746	57	3. 16	
772	293798	293824	293850	293876	293902	293928	293954	293980	294006	294032	294058	56	4. 21	
884	294110	294137	294163	294189	294215	294241	294267	294293	294319	294345	294371	55	1 = 5	
397	294423	294449	294476	294502	294528	294554	294580	294606	294632	294658	294684	54	2. 10	
710	294736	294762	294789	294815	294841	294867	294893	294919	294945	294971	294997	53	3. 16	
923	295050	295076	295102	295128	295154	295180	295206	295232	295258	295285	295311	52	4. 21	
337	295363	295389	295415	295441	295467	295493	295520	295546	295572	295598	295624	51	1 = 5	
650	295676	295702	295729	295755	295781	295807	295833	295859	295885	295912	295938	50	2. 10	
964	295990	296016	296042	296068	296094	296121	296147	296173	296199	296225	296251	49	3. 16	
277	296303	296330	296356	296382	296408	296434	296461	296487	296513	296539	296565	48	4. 21	
591	296617	296644	296670	296696	296722	296748	296774	296801	296827	296853	296879	47	1 = 5	
905	296931	296958	296984	297010	297036	297062	297089	297115	297141	297167	297193	46	2. 10	
219	297246	297272	297298	297324	297350	297377	297403	297429	297455	297481	297507	45	3. 16	
534	297560	297586	297612	297638	297665	297691	297717	297743	297769	297796	297822	44	4. 21	
848	297874	297900	297927	297953	297979	298005	298031	298058	298084	298110	298136	43	1 = 5	
163	298189	298215	298241	298267	298293	298320	298346	298372	298399	298425	298451	42	2. 11	
477	298503	298530	298556	298582	298608	298635	298661	298687	298713	298740	298766	41	3. 16	
792	298818	298844	298871	298897	298923	298949	298976	299002	299028	299054	299081	40	4. 21	
107	299133	299159	299186	299212	299238	299264	299291	299317	299343	299369	299396	39	1 = 5	
422	299448	299475	299501	299527	299553	299580	299606	299632	299658	299685	299711	38	2. 11	
737	299763	299790	299816	299842	299868	299895	299921	299947	299974	300000	300026	37	3. 16	
253	300079	300105	300131	300158	300184	300211	300237	300263	300289	300315	300342	36	4. 21	
368	300394	300421	300447	300473	300499	300526	300552	300578	300605	300631	300657	35	1 = 5	
684	300710	300736	300763	300789	300815	300841	300868	300894	300920	300947	300973	34	2.	

LOGARITHMIC TANGENTS.

Minutes	Tangent of 64 degrees, or Co-tangent of 154 degrees.												Minutes	Prop.
	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
0	10.311818	311845	311872	311898	311925	311952	311979	312005	312032	312059	312085	312112	59	1 =
1	10.312139	312166	312192	312219	312246	312273	312299	312326	312353	312380	312406	312433	58	2 =
2	10.312460	312486	312513	312540	312567	312593	312620	312647	312674	312700	312727	312754	57	3 =
3	10.312781	312807	312834	312861	312888	312915	312941	312968	312995	313022	313048	313075	56	4 =
4	10.313102	313129	313155	313182	313209	313236	313263	313289	313316	313343	313370	313396	55	1 =
5	10.313423	313450	313477	313504	313530	313557	313584	313611	313637	313664	313691	313718	54	2 =
6	10.313745	313771	313798	313825	313852	313879	313905	313932	313959	313986	314013	314039	53	3 =
7	10.314066	314093	314120	314147	314173	314200	314227	314254	314281	314307	314334	314361	52	4 =
8	10.314388	314415	314442	314468	314495	314522	314549	314576	314602	314629	314656	314683	51	1 =
9	10.314710	314737	314763	314790	314817	314844	314871	314898	314924	314951	314978	315005	50	2 =
10	10.315032	315059	315086	315112	315139	315166	315193	315220	315247	315273	315300	315327	49	3 =
11	10.315354	315381	315408	315435	315461	315488	315515	315542	315569	315596	315623	315649	48	4 =
12	10.315676	315703	315730	315757	315784	315811	315838	315864	315891	315918	315945	315972	47	1 =
13	10.315999	316026	316053	316079	316106	316133	316160	316187	316214	316241	316268	316295	46	2 =
14	10.316321	316348	316375	316402	316429	316456	316483	316510	316537	316564	316590	316617	45	3 =
15	10.316644	316671	316698	316725	316752	316779	316806	316833	316860	316886	316913	316940	44	4 =
16	10.316967	316994	317021	317048	317075	317102	317129	317156	317182	317209	317236	317263	43	1 =
17	10.317290	317317	317344	317371	317398	317425	317452	317479	317506	317533	317560	317586	42	2 =
18	10.317613	317640	317667	317694	317721	317748	317775	317802	317829	317856	317883	317910	41	3 =
19	10.317937	317964	317991	318018	318045	318072	318099	318125	318152	318179	318206	318233	40	4 =
20	10.318260	318287	318314	318341	318368	318395	318422	318449	318476	318503	318530	318557	39	1 =
21	10.318584	318611	318638	318665	318692	318719	318746	318773	318800	318827	318854	318881	38	2 =
22	10.318908	318935	318962	318989	319016	319043	319070	319097	319124	319151	319178	319205	37	3 =
23	10.319232	319259	319286	319313	319340	319367	319394	319421	319448	319475	319502	319529	36	4 =
24	10.319556	319583	319610	319637	319664	319691	319718	319745	319772	319799	319826	319853	35	1 =
25	10.319880	319907	319934	319961	319988	320015	320042	320069	320096	320123	320150	320178	34	2 =
26	10.320205	320232	320259	320286	320313	320340	320367	320394	320421	320448	320475	320502	33	3 =
27	10.320529	320556	320583	320610	320637	320664	320691	320719	320746	320773	320800	320827	32	4 =
28	10.320854	320881	320908	320935	320962	320989	321016	321043	321070	321097	321125	321152	31	1 =
29	10.321179	321206	321233	321260	321287	321314	321341	321368	321395	321423	321450	321477	30	2 =
30	10.321504	321531	321558	321585	321612	321639	321666	321694	321721	321748	321775	321802	29	3 =
31	10.321829	321856	321883	321910	321937	321965	321992	322019	322046	322073	322100	322127	28	4 =
32	10.322154	322182	322209	322236	322263	322290	322317	322344	322371	322398	322426	322453	27	1 =
33	10.322480	322507	322534	322561	322588	322616	322643	322670	322697	322724	322751	322778	26	2 =
34	10.322806	322833	322860	322887	322914	322941	322968	322996	323023	323050	323077	323104	25	3 =
35	10.323131	323159	323186	323213	323240	323267	323294	323321	323349	323376	323403	323430	24	4 =
36	10.323457	323484	323512	323539	323566	323593	323620	323648	323675	323702	323729	323756	23	1 =
37	10.323783	323811	323838	323865	323892	323919	323947	323974	324001	324028	324055	324082	22	2 =
38	10.324110	324137	324164	324191	324218	324246	324273	324300	324327	324355	324382	324409	21	3 =
39	10.324436	324463	324491	324518	324545	324572	324599	324627	324654	324681	324708	324735	20	4 =
40	10.324763	324790	324817	324844	324872	324899	324926	324953	324981	325008	325035	325062	19	1 =
41	10.325089	325117	325144	325171	325198	325226	325253	325280	325307	325335	325362	325389	18	2 =
42	10.325416	325444	325471	325498	325525	325553	325580	325607	325634	325662	325689	325716	17	3 =
43	10.325743	325771	325798	325825	325852	325880	325907	325934	325962	325989	326016	326043	16	4 =
44	10.326071	326098	326125	326152	326180	326207	326234	326262	326289	326316	326343	326371	15	1 =
45	10.326398	326425	326453	326480	326507	326534	326562	326589	326616	326644	326671	326698	14	2 =
46	10.326725	326753	326780	326807	326835	326862	326889	326917	326944	326971	326999	327026	13	3 =
47	10.327053	327080	327108	327135	327162	327190	327217	327244	327272	327299	327326	327354	12	4 =
48	10.327381	327408	327436	327463	327490	327518	327545	327572	327600	327627	327654	327682	11	1 =
49	10.327709	327736	327764	327791	327818	327846	327873	327900	327928	327955	327982	328010	10	2 =
50	10.328037	328064	328092	328119	328147	328174	328201	328229	328256	328283	328311	328338	9	3 =
51	10.328365	328393	328420	328448	328475	328502	328530	328557	328584	328612	328639	328667	8	4 =
52	10.328694	328721	328749	328776	328803	328831	328858	328886	328913	328940	328968	328995	7	1 =
53	10.329023	329050	329077	329105	329132	329160	329187	329214	329242	329269	329297	329324	6	2 =
54	10.329351	329379	329406	329434	329461	329488	329516	329543	329571	329598	329625	329653	5	3 =
55	10.329680	329708	329735	329763	329790	329817	329845	329872	329900	329927	329955	329982	4	4 =
56	10.330009	330037	330064	330092	330119	330147	330174	330201	330229	330256	330284	330311	3	1 =
57	10.330339	330366	330394	330421	330448	330476	330503	330531	330558	330586	330613	330641	2	2 =
58	10.330668	330696	330723	330750	330778	330805	330833	330860	330888	330915	330943	330970	1	3 =
59	10.330998	331025	331053	331080	331108	331135	331163	331190	331217	331245	331272	331300	0	4 =
Minutes	60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Prop.

Co-tangent of 25 degrees, or Tangent of 115 degrees.

LOGARITHMIC TANGENTS.

Tangent of 65 degrees, or Co-tangent of 155 degrees.												Minutes	Proper parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
10. 331327	331355	331382	331410	331437	331465	331492	331520	331547	331575	331602	331630	59	1" = 6
10. 331657	331685	331712	331740	331767	331795	331822	331850	331877	331905	331932	331960	58	2. 11
10. 331987	332015	332042	332070	332097	332125	332152	332180	332208	332235	332263	332290	57	3. 17
10. 332318	332345	332373	332400	332428	332455	332483	332510	332538	332565	332593	332620	56	4. 22
10. 332648	332676	332703	332731	332758	332786	332813	332841	332868	332896	332923	332951	55	1" = 6
10. 332979	333006	333034	333061	333089	333116	333144	333171	333199	333227	333254	333282	54	2. 11
10. 333309	333337	333364	333392	333420	333447	333475	333502	333530	333557	333585	333613	53	3. 17
10. 333640	333668	333695	333723	333750	333778	333806	333833	333861	333888	333916	333944	52	4. 22
10. 333971	333999	334026	334054	334082	334109	334137	334164	334192	334220	334247	334275	51	1" = 6
10. 334302	334330	334358	334385	334413	334440	334468	334496	334523	334551	334579	334606	50	2. 11
10. 334634	334661	334689	334717	334744	334772	334800	334827	334855	334882	334910	334938	49	3. 17
10. 334965	334993	335021	335048	335076	335103	335131	335159	335186	335214	335242	335269	48	4. 22
10. 335297	335325	335352	335380	335408	335435	335463	335491	335518	335546	335574	335601	47	1" = 6
10. 335629	335657	335684	335712	335740	335767	335795	335823	335850	335878	335906	335933	46	2. 11
10. 335961	335989	336016	336044	336072	336099	336127	336155	336182	336210	336238	336265	45	3. 17
10. 336293	336321	336348	336376	336404	336432	336459	336487	336515	336542	336570	336598	44	4. 22
10. 336625	336653	336681	336709	336736	336764	336792	336819	336847	336875	336903	336930	43	1" = 6
10. 336958	336986	337013	337041	337069	337097	337124	337152	337180	337207	337235	337263	42	2. 11
10. 337291	337318	337346	337374	337402	337429	337457	337485	337513	337540	337568	337596	41	3. 17
10. 337623	337651	337679	337707	337734	337762	337790	337818	337845	337873	337901	337929	40	4. 22
10. 337957	337984	338012	338040	338068	338095	338123	338151	338179	338206	338234	338262	39	1" = 6
10. 338290	338317	338345	338373	338401	338429	338456	338484	338512	338540	338567	338595	38	2. 11
10. 338623	338651	338679	338706	338734	338762	338790	338818	338845	338873	338901	338929	37	3. 17
10. 338957	338984	339012	339040	339068	339096	339123	339151	339179	339207	339235	339262	36	4. 22
10. 339290	339318	339346	339374	339402	339429	339457	339485	339513	339541	339568	339596	35	1" = 6
10. 339624	339652	339680	339708	339735	339763	339791	339819	339847	339875	339902	339930	34	2. 11
10. 339958	339986	340014	340042	340070	340097	340125	340153	340181	340209	340237	340264	33	3. 17
10. 340292	340320	340348	340376	340404	340432	340459	340487	340515	340543	340571	340599	32	4. 22
10. 340627	340655	340682	340710	340738	340766	340794	340822	340850	340878	340905	340933	31	1" = 6
10. 340961	340989	341017	341045	341073	341101	341129	341156	341184	341212	341240	341268	30	2. 11
10. 341296	341324	341352	341380	341408	341435	341463	341491	341519	341547	341575	341603	29	3. 17
10. 341631	341659	341687	341715	341742	341770	341798	341826	341854	341882	341910	341938	28	4. 22
10. 341966	341994	342022	342050	342078	342105	342133	342161	342189	342217	342245	342273	27	1" = 6
10. 342301	342329	342357	342385	342413	342441	342469	342497	342525	342553	342580	342608	26	2. 11
10. 342636	342664	342692	342720	342748	342776	342804	342832	342860	342888	342916	342944	25	3. 17
10. 342972	343000	343028	343056	343084	343112	343140	343168	343196	343224	343252	343280	24	4. 22
10. 343308	343336	343364	343392	343420	343448	343476	343504	343532	343560	343588	343616	23	1" = 6
10. 343644	343672	343700	343728	343756	343784	343812	343840	343868	343896	343924	343952	22	2. 11
10. 343980	344008	344036	344064	344092	344120	344148	344176	344204	344232	344260	344288	21	3. 17
10. 344316	344344	344372	344400	344428	344456	344484	344512	344540	344568	344596	344624	20	4. 22
10. 344652	344680	344708	344736	344764	344792	344820	344848	344877	344905	344933	344961	19	1" = 6
10. 344989	345017	345045	345073	345101	345129	345157	345185	345213	345241	345269	345297	18	2. 11
10. 345326	345354	345382	345410	345438	345466	345494	345522	345550	345578	345606	345634	17	3. 17
10. 345662	345691	345719	345747	345775	345803	345831	345859	345887	345915	345943	345971	16	4. 22
10. 346000	346028	346056	346084	346112	346140	346168	346196	346224	346252	346281	346309	15	1" = 6
10. 346337	346365	346393	346421	346449	346477	346506	346534	346562	346590	346618	346646	14	2. 11
10. 346674	346702	346731	346759	346787	346815	346843	346871	346899	346927	346956	346984	13	3. 17
10. 347012	347040	347068	347096	347124	347153	347181	347209	347237	347265	347293	347322	12	4. 22
10. 347350	347378	347406	347434	347462	347490	347519	347547	347575	347603	347631	347659	11	1" = 6
10. 347688	347716	347744	347772	347800	347828	347857	347885	347913	347941	347969	347998	10	2. 11
10. 348026	348054	348082	348110	348139	348167	348195	348223	348251	348279	348308	348336	9	3. 17
10. 348364	348392	348420	348449	348477	348505	348533	348562	348590	348618	348646	348674	8	4. 22
10. 348703	348731	348759	348787	348815	348844	348872	348900	348928	348957	348985	349013	7	1" = 6
10. 349041	349069	349098	349126	349154	349182	349211	349239	349267	349295	349324	349352	6	2. 11
10. 349380	349408	349437	349465	349493	349521	349550	349578	349606	349634	349663	349691	5	3. 17
10. 349719	349747	349776	349804	349832	349860	349889	349917	349945	349973	350002	350030	4	4. 22
10. 350068	350096	350125	350153	350181	350209	350238	350266	350294	350323	350351	350379	3	1" = 6
10. 350398	350426	350454	350483	350511	350539	350567	350596	350624	350652	350681	350709	2	2. 11
10. 350737	350765	350794	350822	350850	350879	350907	350935	350964	350992	351020	351049	1	3. 17
10. 351079	351107	351135	351163	351191	351219	351247	351275	351303	351332	351360	351388	0	4. 22
60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proper parts.
Co-tangent of 24 degrees, or Tangent of 114 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 66 degrees, or Co-tangent of 156 degrees.																
Minute	0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minute	Proport. parts.		
0	10.351417	351445	351473	351502	351530	351558	351587	351615	351644	351672	351700	351729	59	1" = 6		
1	10.351757	351785	351814	351842	351870	351899	351927	351955	351984	352012	352040	352069	58	2. 11		
2	10.352097	352126	352154	352182	352211	352239	352267	352296	352324	352352	352381	352409	57	3. 17		
3	10.352438	352466	352494	352523	352551	352579	352608	352636	352665	352693	352721	352750	56	4. 23		
4	10.352778	352807	352835	352863	352892	352920	352949	352977	353005	353034	353062	353091	55	1" = 6		
5	10.353119	353147	353176	353204	353233	353261	353289	353318	353346	353375	353403	353432	54	2. 11		
6	10.353460	353488	353517	353545	353574	353602	353631	353659	353687	353716	353744	353773	53	3. 17		
7	10.353801	353830	353858	353886	353915	353943	353972	354000	354029	354057	354086	354114	52	4. 23		
8	10.354142	354171	354199	354228	354256	354285	354313	354342	354370	354399	354427	354456	51	1" = 6		
9	10.354484	354512	354541	354569	354598	354626	354655	354683	354712	354740	354769	354797	50	2. 11		
10	10.354826	354854	354883	354911	354940	354968	354997	355025	355054	355082	355111	355139	49	3. 17		
11	10.355168	355196	355225	355253	355282	355310	355339	355367	355396	355424	355453	355481	48	4. 23		
12	10.355510	355538	355567	355595	355624	355652	355681	355709	355738	355766	355795	355823	47	1" = 6		
13	10.355852	355880	355909	355937	355966	355995	356023	356052	356080	356109	356137	356166	46	2. 11		
14	10.356194	356223	356251	356280	356308	356337	356366	356394	356423	356451	356480	356508	45	3. 17		
15	10.356537	356565	356594	356623	356651	356680	356708	356737	356765	356794	356823	356851	44	4. 23		
16	10.356880	356908	356937	356965	356994	357023	357051	357080	357108	357137	357165	357194	43	1" = 6		
17	10.357223	357251	357280	357308	357337	357366	357394	357423	357451	357480	357509	357537	42	2. 11		
18	10.357566	357594	357623	357652	357680	357709	357737	357766	357795	357823	357852	357881	41	3. 17		
19	10.357909	357937	357966	357995	358024	358052	358081	358109	358138	358167	358195	358224	40	4. 23		
20	10.358253	358281	358310	358339	358367	358396	358424	358453	358482	358510	358539	358568	39	1" = 6		
21	10.358596	358625	358654	358683	358711	358740	358768	358797	358826	358854	358883	358912	38	2. 11		
22	10.358940	358969	358998	359026	359055	359084	359112	359141	359170	359198	359227	359256	37	3. 17		
23	10.359284	359313	359342	359370	359399	359428	359456	359485	359514	359543	359571	359600	36	4. 23		
24	10.359629	359657	359686	359715	359743	359772	359801	359829	359858	359887	359916	359944	35	1" = 6		
25	10.359973	360002	360030	360059	360088	360117	360145	360174	360203	360231	360260	360289	34	2. 11		
26	10.360318	360346	360375	360404	360433	360461	360490	360519	360548	360576	360605	360634	33	3. 17		
27	10.360662	360691	360720	360749	360777	360806	360835	360864	360892	360921	360950	360979	32	4. 23		
28	10.361007	361036	361065	361094	361123	361151	361180	361209	361238	361266	361295	361324	31	1" = 6		
29	10.361353	361381	361410	361439	361468	361497	361525	361554	361583	361612	361640	361669	30	2. 11		
30	10.361698	361727	361756	361784	361813	361842	361871	361900	361928	361957	361986	362015	29	3. 17		
31	10.362044	362072	362101	362130	362159	362188	362216	362245	362274	362302	362331	362360	28	4. 23		
32	10.362389	362418	362447	362476	362505	362533	362562	362591	362620	362649	362678	362706	27	1" = 6		
33	10.362735	362764	362793	362822	362851	362880	362908	362937	362966	362995	363024	363053	26	2. 11		
34	10.363081	363110	363139	363168	363197	363226	363255	363283	363312	363341	363370	363399	25	3. 17		
35	10.363428	363457	363486	363514	363543	363572	363601	363630	363659	363688	363717	363745	24	4. 23		
36	10.363774	363803	363832	363861	363890	363919	363948	363976	364005	364034	364063	364092	23	1" = 6		
37	10.364121	364150	364179	364208	364237	364265	364294	364323	364352	364381	364410	364439	22	2. 11		
38	10.364468	364497	364526	364555	364584	364612	364641	364670	364699	364728	364757	364786	21	3. 17		
39	10.364815	364844	364873	364902	364931	364960	364989	365017	365046	365075	365104	365133	20	4. 23		
40	10.365162	365191	365220	365249	365278	365307	365336	365365	365394	365423	365452	365481	19	1" = 6		
41	10.365510	365539	365568	365597	365626	365654	365683	365712	365741	365770	365799	365828	18	2. 11		
42	10.365857	365886	365915	365944	365973	366002	366031	366060	366089	366118	366147	366176	17	3. 17		
43	10.366205	366234	366263	366292	366321	366350	366379	366408	366437	366466	366495	366524	16	4. 23		
44	10.366553	366582	366611	366640	366669	366698	366727	366756	366785	366814	366843	366872	15	1" = 6		
45	10.366901	366930	366959	366988	367017	367046	367075	367104	367133	367162	367191	367220	14	2. 11		
46	10.367250	367279	367308	367337	367366	367395	367424	367453	367482	367511	367540	367569	13	3. 17		
47	10.367598	367627	367656	367685	367714	367743	367773	367802	367831	367860	367889	367917	12	4. 23		
48	10.367947	367976	368005	368034	368063	368092	368122	368151	368180	368209	368238	368267	11	1" = 6		
49	10.368296	368325	368354	368383	368413	368442	368471	368500	368529	368558	368587	368616	10	2. 11		
50	10.368645	368674	368703	368732	368761	368791	368820	368849	368878	368907	368937	368966	9	3. 17		
51	10.368995	369024	369053	369082	369111	369140	369170	369199	369228	369257	369286	369315	8	4. 23		
52	10.369344	369373	369402	369432	369461	369490	369519	369548	369578	369607	369636	369665	7	1" = 6		
53	10.369694	369723	369752	369782	369811	369840	369869	369898	369927	369957	369986	370015	6	2. 11		
54	10.370044	370073	370102	370131	370161	370190	370219	370248	370278	370307	370336	370365	5	3. 17		
55	10.370394	370423	370452	370482	370511	370540	370569	370599	370628	370657	370686	370715	4	4. 23		
56	10.370745	370774	370803	370832	370861	370891	370920	370949	370978	371008	371037	371066	3	1" = 6		
57	10.371095	371124	371154	371183	371212	371241	371271	371300	371329	371358	371387	371417	2	2. 11		
58	10.371446	371475	371504	371534	371563	371592	371621	371651	371680	371709	371738	371768	1	3. 17		
59	10.371797	371826	371855	371885	371914	371943	371972	372002	372031	372060	372089	372119	0	4. 23		
60" 55" 50" 45" 40" 35" 30" 25" 20" 15" 10" 5"																
Co-tangent of 23 degrees, or Tangent of 113 degrees.																
Minute															Minute	Proport. parts.

LOGARITHMIC TANGENTS.

Tangent of 67 degrees, or Co-tangent of 157 degrees.												Minutes	Proport. parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
2148	372177	372207	372236	372265	372294	372324	372353	372382	372412	372441	372470	59	1" = 6
2499	372529	372558	372587	372617	372646	372675	372704	372734	372763	372792	372822	58	2. 12
2851	372880	372910	372939	372968	372997	373027	373056	373085	373115	373144	373173	57	3. 18
3203	373232	373261	373291	373320	373349	373379	373408	373437	373467	373496	373525	56	4. 23
3555	373584	373613	373643	373672	373701	373731	373760	373789	373819	373848	373877	55	1 = 6
3907	373936	373965	373995	374024	374053	374083	374112	374142	374171	374200	374230	54	2. 12
4259	374288	374318	374347	374377	374406	374435	374465	374494	374523	374553	374582	53	3. 18
4612	374641	374670	374700	374729	374759	374788	374817	374847	374876	374905	374935	52	4. 23
4964	374994	375023	375053	375082	375111	375141	375170	375200	375229	375258	375288	51	1 = 6
5317	375347	375376	375405	375435	375464	375494	375523	375553	375582	375611	375641	50	2. 12
5670	375700	375729	375759	375788	375818	375847	375876	375906	375935	375965	375994	49	3. 18
6024	376053	376083	376112	376142	376171	376200	376230	376259	376289	376318	376348	48	4. 24
6377	376407	376436	376466	376495	376525	376554	376584	376613	376643	376672	376701	47	1 = 6
6731	376760	376790	376819	376849	376878	376908	376937	376967	376996	377026	377055	46	2. 12
7085	377114	377144	377173	377203	377232	377262	377291	377321	377350	377380	377410	45	3. 18
7439	377469	377498	377528	377557	377587	377616	377646	377675	377705	377734	377764	44	4. 24
7793	377823	377852	377882	377912	377941	377971	378000	378030	378059	378089	378118	43	1 = 6
8148	378177	378207	378237	378266	378296	378325	378355	378384	378414	378444	378473	42	2. 12
8503	378532	378562	378591	378621	378651	378680	378710	378739	378769	378798	378828	41	3. 18
8858	378887	378917	378946	378976	379006	379035	379065	379094	379124	379154	379183	40	4. 24
9213	379242	379272	379302	379331	379361	379390	379420	379450	379479	379509	379539	39	1 = 6
9568	379598	379627	379657	379687	379716	379746	379776	379805	379835	379864	379894	38	2. 12
9924	379953	379983	380013	380042	380072	380102	380131	380161	380191	380220	380250	37	3. 18
0279	380309	380339	380368	380398	380428	380457	380487	380517	380546	380576	380606	36	4. 24
0635	380665	380695	380724	380754	380784	380814	380843	380873	380903	380932	380962	35	1 = 6
0992	381021	381051	381081	381110	381140	381170	381200	381229	381259	381289	381318	34	2. 12
1348	381378	381407	381437	381467	381497	381526	381556	381586	381615	381645	381675	33	3. 18
1705	381734	381764	381794	381824	381853	381883	381913	381942	381972	382002	382032	32	4. 24
2061	382091	382121	382151	382180	382210	382240	382270	382299	382329	382359	382389	31	1 = 6
2418	382448	382478	382508	382537	382567	382597	382627	382656	382686	382716	382746	30	2. 12
2776	382805	382835	382865	382895	382925	382954	382984	383014	383044	383073	383103	29	3. 18
3133	383163	383193	383222	383252	383282	383312	383342	383371	383401	383431	383461	28	4. 24
3491	383521	383550	383580	383610	383640	383670	383699	383729	383759	383789	383819	27	1 = 6
3849	383878	383908	383938	383968	383998	384028	384057	384087	384117	384147	384177	26	2. 12
4207	384236	384266	384296	384326	384356	384386	384416	384445	384475	384505	384535	25	3. 18
4565	384595	384625	384654	384684	384714	384744	384774	384804	384834	384864	384894	24	4. 24
4923	384953	384983	385013	385043	385073	385103	385133	385162	385192	385222	385252	23	1 = 6
5281	385312	385342	385372	385402	385431	385461	385491	385521	385551	385581	385611	22	2. 12
5641	385671	385701	385731	385761	385790	385820	385850	385880	385910	385940	385970	21	3. 18
6000	386030	386060	386090	386120	386150	386180	386210	386239	386269	386299	386329	20	4. 24
6359	386389	386419	386449	386479	386509	386539	386569	386599	386629	386659	386689	19	1 = 6
6719	386749	386779	386809	386839	386869	386899	386929	386959	386989	387019	387049	18	2. 12
7079	387109	387139	387168	387198	387228	387258	387288	387318	387348	387378	387408	17	3. 18
7438	387468	387498	387528	387559	387589	387619	387649	387679	387709	387739	387769	16	4. 24
7799	387829	387859	387889	387919	387949	387979	388009	388039	388069	388099	388129	15	1 = 6
8159	388189	388219	388249	388279	388309	388339	388369	388399	388429	388459	388490	14	2. 12
8520	388550	388580	388610	388640	388670	388700	388730	388760	388790	388820	388850	13	3. 18
8880	388910	388941	388971	389001	389031	389061	389091	389121	389151	389181	389211	12	4. 24
9244	389271	389302	389332	389362	389392	389422	389452	389482	389512	389542	389573	11	1 = 6
9603	389633	389663	389693	389723	389753	389783	389813	389844	389874	389904	389934	10	2. 12
9964	389994	390024	390054	390085	390115	390145	390175	390205	390235	390265	390296	9	3. 18
0326	390356	390386	390416	390446	390476	390507	390537	390567	390597	390627	390657	8	4. 24
0688	390718	390748	390778	390808	390838	390869	390899	390929	390959	390989	391020	7	1 = 6
1050	391080	391110	391140	391170	391201	391231	391261	391291	391321	391352	391382	6	2. 12
1412	391442	391472	391503	391533	391563	391593	391623	391654	391684	391714	391744	5	3. 18
1775	391805	391835	391865	391895	391926	391956	391986	392016	392047	392077	392107	4	4. 24
2137	392167	392198	392228	392258	392288	392319	392349	392379	392409	392440	392470	3	1 = 6
2500	392530	392561	392591	392621	392652	392682	392712	392742	392773	392803	392833	2	2. 12
2863	392894	392924	392954	392984	393015	393045	393075	393106	393136	393166	393196	1	3. 18
3227	393257	393287	393318	393348	393378	393409	393439	393469	393499	393530	393560	0	4. 24
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		Minutes	Proport. parts.
Co-tangent of 22 degrees, or Tangent of 112 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 68 degrees, or Co-tangent of 158 degrees.														
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes	Proportional Parts
0	10.393590	393621	393651	393681	393712	393742	393772	393803	393833	393863	393894	393924	59	1" =
1	10.393954	393985	394015	394045	394076	394106	394136	394167	394197	394227	394258	394288	58	2" =
2	10.394318	394349	394379	394409	394440	394470	394500	394531	394561	394591	394622	394652	57	3" =
3	10.394683	394713	394743	394774	394804	394834	394865	394895	394926	394956	394986	395017	56	4" =
4	10.395047	395077	395108	395138	395169	395199	395229	395260	395290	395321	395351	395381	55	1" =
5	10.395412	395442	395473	395503	395533	395564	395594	395625	395655	395685	395716	395746	54	2" =
6	10.395777	395807	395838	395868	395898	395929	395959	395990	396020	396051	396081	396111	53	3" =
7	10.396142	396172	396203	396233	396264	396294	396324	396355	396385	396416	396446	396477	52	4" =
8	10.396507	396538	396568	396599	396629	396660	396690	396720	396751	396781	396812	396842	51	1" =
9	10.396873	396903	396934	396964	396995	397025	397056	397086	397117	397147	397178	397208	50	2" =
10	10.397239	397269	397300	397330	397361	397391	397422	397452	397483	397513	397544	397574	49	3" =
11	10.397605	397635	397666	397696	397727	397757	397788	397818	397849	397879	397910	397940	48	4" =
12	10.397971	398001	398032	398063	398093	398124	398154	398185	398215	398246	398276	398307	47	1" =
13	10.398337	398368	398399	398429	398460	398490	398521	398551	398582	398612	398643	398674	46	2" =
14	10.398704	398735	398765	398796	398826	398857	398888	398918	398949	398979	399010	399041	45	3" =
15	10.399071	399102	399132	399163	399193	399224	399255	399285	399316	399346	399377	399408	44	4" =
16	10.399438	399469	399499	399530	399561	399591	399622	399653	399683	399714	399744	399775	43	1" =
17	10.399806	399836	399867	399898	399928	399959	399989	400020	400051	400081	400112	400143	42	2" =
18	10.400173	400204	400235	400265	400296	400327	400357	400388	400418	400449	400480	400510	41	3" =
19	10.400541	400572	400602	400633	400664	400694	400725	400756	400786	400817	400848	400878	40	4" =
20	10.400909	400940	400971	401001	401032	401063	401093	401124	401155	401185	401216	401247	39	1" =
21	10.401277	401308	401339	401370	401400	401431	401462	401492	401523	401554	401585	401615	38	2" =
22	10.401646	401677	401707	401738	401769	401800	401830	401861	401892	401923	401953	401984	37	3" =
23	10.402015	402045	402076	402107	402138	402168	402199	402230	402261	402292	402322	402353	36	4" =
24	10.402384	402414	402445	402476	402507	402538	402568	402599	402630	402661	402691	402722	35	1" =
25	10.402753	402784	402814	402845	402876	402907	402938	402968	402999	403030	403061	403092	34	2" =
26	10.403122	403153	403184	403215	403246	403276	403307	403338	403369	403400	403430	403461	33	3" =
27	10.403492	403523	403554	403584	403615	403646	403677	403708	403739	403769	403800	403831	32	4" =
28	10.403862	403893	403924	403954	403985	404016	404047	404078	404109	404140	404170	404201	31	1" =
29	10.404232	404263	404294	404325	404355	404386	404417	404448	404479	404510	404541	404572	30	2" =
30	10.404602	404633	404664	404695	404726	404757	404788	404819	404849	404880	404911	404942	29	3" =
31	10.404973	405004	405035	405066	405097	405127	405158	405189	405220	405251	405282	405313	28	4" =
32	10.405344	405375	405406	405437	405467	405498	405529	405560	405591	405622	405653	405684	27	1" =
33	10.405715	405746	405777	405808	405839	405870	405900	405931	405962	405993	406024	406055	26	2" =
34	10.406086	406117	406148	406179	406210	406241	406272	406303	406334	406365	406396	406427	25	3" =
35	10.406458	406489	406520	406551	406582	406613	406644	406675	406706	406737	406767	406798	24	4" =
36	10.406829	406860	406891	406922	406953	406984	407015	407046	407077	407108	407139	407170	23	1" =
37	10.407201	407232	407263	407294	407325	407356	407388	407419	407450	407481	407512	407543	22	2" =
38	10.407574	407605	407636	407667	407698	407729	407760	407791	407822	407853	407884	407915	21	3" =
39	10.407946	407977	408008	408039	408070	408101	408132	408163	408195	408226	408257	408288	20	4" =
40	10.408319	408350	408381	408412	408443	408474	408505	408536	408567	408598	408630	408661	19	1" =
41	10.408692	408723	408754	408785	408816	408847	408878	408909	408940	408972	409003	409034	18	2" =
42	10.409065	409096	409127	409158	409189	409220	409252	409283	409314	409345	409376	409407	17	3" =
43	10.409438	409469	409501	409532	409563	409594	409625	409656	409687	409718	409750	409781	16	4" =
44	10.409812	409843	409874	409905	409936	409968	409999	410030	410061	410092	410123	410155	15	1" =
45	10.410186	410217	410248	410279	410310	410342	410373	410404	410435	410466	410497	410529	14	2" =
46	10.410560	410591	410622	410653	410685	410716	410747	410778	410809	410841	410872	410903	13	3" =
47	10.410934	410965	410997	411028	411059	411090	411121	411153	411184	411215	411246	411278	12	4" =
48	10.411309	411340	411371	411402	411434	411465	411496	411527	411559	411590	411621	411652	11	1" =
49	10.411684	411715	411746	411777	411809	411840	411871	411902	411934	411965	411996	412027	10	2" =
50	10.412059	412090	412121	412153	412184	412215	412246	412278	412309	412340	412371	412403	9	3" =
51	10.412434	412465	412497	412528	412559	412590	412622	412653	412684	412716	412747	412778	8	4" =
52	10.412810	412841	412872	412903	412935	412966	412997	413029	413060	413091	413123	413154	7	1" =
53	10.413185	413217	413248	413279	413311	413342	413373	413405	413436	413467	413499	413530	6	2" =
54	10.413561	413593	413624	413655	413687	413718	413749	413781	413812	413843	413875	413906	5	3" =
55	10.413938	413969	414000	414032	414063	414094	414126	414157	414189	414220	414251	414283	4	4" =
56	10.414314	414345	414377	414408	414440	414471	414502	414534	414565	414597	414628	414659	3	1" =
57	10.414691	414722	414754	414785	414816	414848	414879	414911	414942	414974	415005	415036	2	2" =
58	10.415068	415099	415131	415162	415194	415225	415256	415288	415319	415351	415382	415414	1	3" =
59	10.415445	415476	415508	415539	415571	415602	415634	415665	415697	415728	415760	415791	0	4" =
	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proportional Parts
Co-tangent of 21 degrees, or Tangent of 111 degrees.														

Tangent of 69 degrees, or Co-tangent of 159 degrees.

Tangent of 69 degrees, or Co-tangent of 159 degrees.												Minutes	Proport. parts.	
1"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
823	415854	418885	415917	415948	415980	416011	416043	416074	416106	416137	416169	59	1"	= 6
1200	416232	416263	416295	416326	416358	416389	416421	416452	416484	416515	416547	58	2.	13
1578	416610	416641	416673	416704	416736	416767	416799	416830	416862	416893	416925	57	3.	19
1956	416988	417019	417051	417083	417114	417146	417177	417209	417240	417272	417303	56	4.	25
2335	417366	417398	417430	417461	417493	417524	417556	417587	417619	417650	417682	55	1 =	6
2714	417745	417777	417808	417840	417871	417903	417935	417966	417998	418029	418061	54	2.	13
3093	418124	418156	418187	418219	418250	418282	418314	418345	418377	418408	418440	53	3.	19
3472	418523	418555	418587	418618	418650	418681	418693	418725	418756	418788	418820	52	4.	25
3851	418883	418914	418946	418978	419009	419041	419073	419104	419136	419168	419199	51	1 =	6
4231	419262	419294	419326	419357	419389	419421	419452	419484	419516	419547	419579	50	2.	13
4611	419643	419674	419706	419737	419769	419801	419833	419864	419896	419928	419959	49	3.	19
4991	420023	420054	420086	420118	420149	420181	420213	420245	420276	420308	420340	48	4.	25
5371	420403	420435	420467	420498	420530	420562	420594	420625	420657	420689	420720	47	1 =	6
5752	420782	420814	420846	420877	420909	420941	420974	421006	421038	421070	421101	46	2.	13
6133	421165	421197	421228	421260	421292	421324	421355	421387	421419	421451	421483	45	3.	19
6514	421546	421578	421610	421641	421673	421705	421737	421768	421800	421832	421864	44	4.	25
6896	421927	421959	421991	422023	422055	422086	422118	422150	422182	422214	422246	43	1 =	6
7277	422309	422341	422373	422405	422436	422468	422500	422532	422564	422596	422627	42	2.	13
7659	422691	422723	422755	422787	422818	422850	422882	422914	422946	422978	423010	41	3.	19
8041	422982	423015	423047	423079	423111	423143	423175	423207	423239	423271	423303	40	4.	25
8424	423456	423488	423520	423551	423583	423615	423647	423679	423711	423743	423775	39	1 =	6
8807	423838	423870	423902	423934	423966	423998	424030	424062	424094	424126	424158	38	2.	13
9190	424221	424253	424285	424317	424349	424381	424413	424445	424477	424509	424541	37	3.	19
9573	424605	424637	424669	424701	424733	424765	424797	424829	424861	424893	424925	36	4.	25
9956	424988	425020	425052	425084	425116	425148	425180	425212	425244	425276	425308	35	1 =	6
10340	425372	425404	425436	425468	425500	425532	425564	425596	425628	425660	425692	34	2.	13
10724	425756	425788	425820	425852	425884	425916	425948	425980	426012	426044	426076	33	3.	19
1108	426140	426172	426204	426236	426268	426300	426332	426364	426396	426428	426461	32	4.	25
11493	426525	426557	426589	426621	426653	426685	426717	426749	426781	426813	426845	31	1 =	6
11877	426909	426941	426974	427006	427038	427070	427102	427134	427166	427198	427230	30	2.	13
12262	427294	427326	427359	427391	427423	427455	427487	427519	427551	427583	427615	29	3.	19
12648	427680	427712	427744	427776	427808	427840	427872	427905	427937	427969	428001	28	4.	25
13033	428065	428097	428129	428162	428194	428226	428258	428290	428322	428354	428387	27	1 =	6
13419	428451	428483	428515	428547	428580	428612	428644	428676	428708	428740	428773	26	2.	13
13805	428837	428869	428901	428934	428966	428998	429030	429062	429095	429127	429159	25	3.	19
14191	429223	429255	429288	429320	429352	429384	429417	429449	429481	429513	429545	24	4.	25
14578	429610	429642	429674	429707	429739	429771	429803	429836	429868	429900	429932	23	1 =	6
14964	429997	430029	430061	430093	430126	430158	430190	430222	430255	430287	430319	22	2.	13
15352	430384	430416	430448	430481	430513	430545	430577	430610	430642	430674	430707	21	3.	19
15739	430771	430803	430836	430868	430900	430933	430965	430997	431030	431062	431094	20	4.	25
16126	431159	431191	431223	431256	431288	431320	431353	431385	431417	431450	431482	19	1 =	6
16514	431547	431579	431611	431644	431676	431708	431741	431773	431805	431838	431870	18	2.	13
902	431935	431967	432000	432032	432064	432097	432129	432161	432194	432226	432258	17	3.	19
201	432323	432356	432388	432420	432453	432485	432517	432550	432582	432615	432647	16	4.	25
679	432712	432744	432777	432809	432841	432874	432906	432939	432971	433004	433036	15	1 =	6
068	433101	433133	433166	433198	433230	433263	433295	433328	433360	433393	433425	14	2.	13
458	433490	433522	433555	433587	433620	433652	433685	433717	433750	433782	433815	13	3.	19
847	433879	433912	433944	433977	434009	434042	434074	434107	434139	434172	434204	12	4.	25
237	434260	434292	434324	434357	434389	434422	434454	434487	434520	434552	434584	11	1 =	6
627	434659	434692	434724	434757	434789	434822	434854	434887	434920	434952	434984	10	2.	13
017	435049	435082	435114	435147	435180	435212	435245	435277	435310	435342	435375	9	3.	20
402	435444	435477	435509	435542	435575	435608	435640	435673	435706	435738	435771	8	4.	25
798	435831	435863	435896	435928	435961	435994	436026	436059	436091	436124	436157	7	1 =	6
189	436222	436254	436287	436320	436352	436385	436417	436450	436483	436515	436548	6	2.	13
581	436613	436646	436678	436711	436744	436776	436809	436842	436874	436907	436939	5	3.	20
972	437005	437037	437070	437103	437135	437168	437201	437233	437266	437299	437331	4	4.	25
364	437397	437429	437462	437495	437527	437560	437593	437625	437658	437691	437723	3	1 =	7
756	437880	437912	437945	437978	438010	438043	438075	438108	438140	438173	438205	2	2.	13
148	438171	438214	438247	438279	438312	438345	438378	438410	438443	438476	438508	1	3.	20
541	438574	438607	438639	438672	438705	438738	438770	438803	438836	438869	438901	0	4.	25
1"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	Minutes	Proport. parts.	
Co-tangent of 20 degrees, or Tangent of 110 degrees.												Minutes	Proport. parts.	

Co-tangent of 20 degrees, or Tangent of 110 degrees.

LOGARITHMIC TANGENTS.

Minutes	Tangent of 70 degrees, or Co-tangent of 160 degrees.												Minutes	Proport. parts.
	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
0	10.438934	438967	439000	439032	439065	439098	439131	439163	439196	439229	439262	439295	59	1" = 1'
1	10.439327	439360	439393	439426	439458	439491	439524	439557	439590	439622	439655	439688	58	2. 13
2	10.439721	439754	439786	439819	439852	439885	439918	439950	439983	440016	440049	440082	57	3. 29
3	10.440115	440147	440180	440213	440246	440279	440312	440344	440377	440410	440443	440476	56	4. 26
4	10.440509	440541	440574	440607	440640	440673	440706	440739	440771	440804	440837	440870	55	1" = 1'
5	10.440903	440936	440969	441001	441034	441067	441100	441133	441166	441199	441232	441265	54	2. 13
6	10.441297	441330	441363	441396	441429	441462	441495	441528	441561	441594	441626	441659	53	3. 20
7	10.441692	441725	441758	441791	441824	441857	441890	441923	441956	441989	442022	442055	52	4. 26
8	10.442087	442120	442153	442186	442219	442252	442285	442318	442351	442384	442417	442450	51	1" = 1'
9	10.442483	442516	442549	442582	442615	442648	442681	442714	442747	442780	442813	442846	50	2. 13
10	10.442879	442912	442945	442977	443010	443043	443076	443109	443142	443175	443208	443241	49	3. 20
11	10.443274	443307	443341	443374	443407	443440	443473	443506	443539	443572	443605	443638	48	4. 26
12	10.443671	443704	443737	443770	443803	443836	443869	443902	443935	443968	444001	444034	47	1" = 1'
13	10.444067	444100	444133	444166	444199	444233	444266	444299	444332	444365	444398	444431	46	2. 13
14	10.444464	444497	444530	444563	444596	444629	444663	444696	444729	444762	444795	444828	45	3. 20
15	10.444861	444894	444927	444960	444994	445027	445060	445093	445126	445159	445192	445225	44	4. 26
16	10.445258	445292	445325	445358	445391	445424	445457	445490	445524	445557	445590	445623	43	1" = 1'
17	10.445656	445689	445722	445756	445789	445822	445855	445888	445921	445955	445988	446021	42	2. 13
18	10.446054	446087	446120	446154	446187	446220	446253	446286	446319	446353	446386	446419	41	3. 20
19	10.446452	446485	446519	446552	446585	446618	446651	446685	446718	446751	446784	446818	40	4. 27
20	10.446851	446884	446917	446950	446984	447017	447050	447083	447117	447150	447183	447216	39	1" = 1'
21	10.447250	447283	447316	447349	447382	447416	447449	447482	447516	447549	447582	447615	38	2. 13
22	10.447649	447682	447715	447748	447782	447815	447848	447881	447915	447948	447981	448015	37	3. 20
23	10.448048	448081	448114	448148	448181	448214	448248	448281	448314	448348	448381	448414	36	4. 27
24	10.448448	448481	448514	448547	448581	448614	448647	448681	448714	448748	448781	448814	35	1" = 1'
25	10.448847	448881	448914	448947	448981	449014	449047	449081	449114	449148	449181	449214	34	2. 13
26	10.449248	449281	449314	449348	449381	449414	449448	449481	449515	449548	449581	449615	33	3. 20
27	10.449648	449681	449715	449748	449782	449815	449848	449882	449915	449949	449982	450015	32	4. 27
28	10.450049	450082	450116	450149	450183	450216	450249	450283	450316	450350	450383	450416	31	1" = 1'
29	10.450450	450483	450517	450550	450584	450617	450651	450684	450717	450751	450784	450818	30	2. 13
30	10.450851	450885	450918	450952	450985	451019	451052	451085	451119	451152	451186	451219	29	3. 20
31	10.451253	451286	451320	451353	451387	451420	451454	451487	451521	451554	451588	451621	28	4. 27
32	10.451655	451688	451722	451755	451789	451822	451856	451889	451923	451956	451990	452023	27	1" = 1'
33	10.452057	452091	452124	452158	452191	452225	452258	452292	452325	452359	452392	452426	26	2. 13
34	10.452459	452493	452527	452560	452594	452627	452661	452694	452728	452762	452795	452829	25	3. 20
35	10.452862	452896	452929	452963	452997	453030	453064	453097	453131	453165	453198	453232	24	4. 27
36	10.453265	453299	453333	453366	453400	453433	453467	453501	453534	453568	453601	453635	23	1" = 1'
37	10.453669	453702	453736	453770	453803	453837	453871	453904	453938	453971	454005	454039	22	2. 13
38	10.454072	454106	454140	454173	454207	454241	454274	454308	454342	454375	454409	454443	21	3. 20
39	10.454476	454510	454544	454577	454611	454645	454678	454712	454746	454780	454813	454847	20	4. 27
40	10.454881	454914	454948	454982	455015	455049	455083	455117	455150	455184	455218	455251	19	1" = 1'
41	10.455285	455319	455353	455386	455420	455454	455488	455521	455555	455589	455622	455656	18	2. 13
42	10.455690	455724	455757	455791	455825	455859	455893	455926	455960	455994	456028	456061	17	3. 20
43	10.456095	456129	456163	456196	456230	456264	456298	456332	456365	456399	456433	456467	16	4. 27
44	10.456501	456534	456568	456602	456636	456670	456703	456736	456771	456805	456839	456872	15	1" = 1'
45	10.456906	456940	456974	457008	457042	457075	457109	457143	457177	457211	457245	457278	14	2. 13
46	10.457312	457346	457380	457414	457448	457482	457515	457549	457583	457617	457651	457685	13	3. 20
47	10.457719	457752	457786	457820	457854	457888	457922	457956	457990	458024	458057	458091	12	4. 27
48	10.458125	458159	458193	458227	458261	458295	458329	458363	458396	458430	458464	458498	11	1" = 1'
49	10.458532	458566	458600	458634	458668	458702	458736	458770	458804	458838	458871	458905	10	2. 13
50	10.458939	458973	459007	459041	459075	459109	459143	459177	459211	459245	459279	459313	9	3. 20
51	10.459347	459381	459415	459449	459483	459517	459551	459585	459619	459653	459687	459721	8	4. 27
52	10.459755	459789	459823	459857	459891	459925	459959	459993	460027	460061	460095	460129	7	1" = 1'
53	10.460163	460197	460231	460265	460299	460333	460367	460401	460435	460469	460503	460537	6	2. 13
54	10.460571	460605	460639	460673	460707	460741	460776	460810	460844	460878	460912	460946	5	3. 20
55	10.460980	461014	461048	461082	461116	461150	461184	461219	461253	461287	461321	461355	4	4. 27
56	10.461389	461423	461457	461491	461525	461559	461594	461628	461662	461696	461730	461764	3	1" = 1'
57	10.461798	461832	461867	461901	461935	461969	462003	462037	462071	462105	462140	462174	2	2. 13
58	10.462208	462242	462276	462310	462345	462379	462413	462447	462481	462515	462550	462584	1	3. 20
59	10.462618	462652	462686	462720	462755	462789	462823	462857	462891	462926	462960	462994	0	4. 27
Minutes	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-tangent of 19 degrees, or Tangent of 109 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 71 degrees, or Co-tangent of 161 degrees.													Minutes	Proport. parts.
0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"			
10. 463028	463062	463097	463131	463165	463199	463233	463268	463302	463336	463370	463404	59	1" = 7	
10. 463439	463473	463507	463541	463576	463610	463644	463678	463713	463747	463781	463815	58	2. 14	
10. 463849	463884	463918	463952	463987	464021	464055	464089	464124	464158	464192	464226	57	3. 21	
10. 464261	464295	464329	464363	464398	464432	464466	464501	464535	464569	464604	464638	56	4. 27	
10. 464672	464706	464741	464775	464809	464844	464878	464912	464947	464981	465015	465050	55	1" = 7	
10. 465084	465118	465153	465187	465221	465256	465290	465324	465359	465393	465427	465462	54	2. 14	
10. 465496	465530	465565	465599	465633	465668	465702	465736	465771	465805	465840	465874	53	3. 21	
10. 465908	465943	465977	466012	466046	466080	466115	466149	466183	466218	466252	466287	52	4. 27	
10. 466321	466355	466390	466424	466459	466493	466528	466562	466596	466631	466665	466700	51	1" = 7	
10. 466734	466769	466803	466837	466872	466906	466941	466975	467010	467044	467078	467113	50	2. 14	
10. 467147	467182	467216	467251	467285	467320	467354	467389	467423	467458	467492	467527	49	3. 21	
10. 467561	467596	467630	467664	467699	467733	467768	467802	467837	467871	467906	467940	48	4. 28	
10. 467975	468009	468044	468079	468113	468148	468182	468217	468251	468286	468320	468355	47	1" = 7	
10. 468389	468424	468458	468493	468527	468562	468596	468631	468666	468700	468735	468769	46	2. 14	
10. 468804	468838	468873	468907	468942	468977	469011	469046	469080	469115	469150	469184	45	3. 21	
10. 469219	469253	469288	469322	469357	469392	469426	469461	469495	469530	469565	469599	44	4. 28	
10. 469634	469669	469703	469738	469772	469807	469842	469876	469911	469945	469980	470015	43	1" = 7	
10. 470049	470084	470119	470153	470188	470223	470257	470292	470327	470361	470396	470431	42	2. 14	
10. 470465	470500	470535	470569	470604	470639	470673	470708	470743	470777	470812	470847	41	3. 21	
10. 470881	470916	470951	470985	471020	471055	471090	471124	471159	471194	471228	471263	40	4. 28	
10. 471298	471333	471367	471402	471437	471471	471506	471541	471576	471610	471645	471680	39	1" = 7	
10. 471715	471749	471784	471819	471854	471888	471923	471958	471993	472027	472062	472097	38	2. 14	
10. 472132	472167	472201	472236	472271	472306	472340	472375	472410	472445	472480	472514	37	3. 21	
10. 472549	472584	472619	472654	472688	472723	472758	472793	472828	472862	472897	472932	36	4. 28	
10. 472967	473002	473037	473071	473106	473141	473176	473211	473246	473280	473315	473350	35	1" = 7	
10. 473385	473420	473455	473490	473524	473559	473594	473629	473664	473699	473734	473768	34	2. 14	
10. 473803	473838	473873	473908	473943	473978	474013	474048	474082	474117	474152	474187	33	3. 21	
10. 474222	474257	474292	474327	474362	474397	474432	474466	474501	474536	474571	474606	32	4. 28	
10. 474641	474676	474711	474746	474781	474816	474851	474886	474921	474956	474991	475025	31	1" = 7	
10. 475060	475095	475130	475165	475200	475235	475270	475305	475340	475375	475410	475445	30	2. 14	
10. 475480	475515	475550	475585	475620	475655	475690	475725	475760	475795	475830	475865	29	3. 21	
10. 475900	475935	475970	476005	476040	476075	476110	476145	476180	476215	476250	476285	28	4. 28	
10. 476320	476355	476390	476426	476461	476496	476531	476566	476601	476636	476671	476706	27	1" = 7	
10. 476741	476776	476811	476846	476881	476916	476951	476987	477022	477057	477092	477127	26	2. 14	
10. 477162	477197	477232	477267	477302	477338	477373	477408	477443	477478	477513	477548	25	3. 21	
10. 477583	477618	477654	477689	477724	477759	477794	477829	477864	477900	477935	477970	24	4. 28	
10. 478005	478040	478075	478110	478146	478181	478216	478251	478286	478321	478357	478392	23	1" = 7	
10. 478427	478462	478497	478532	478568	478603	478638	478673	478708	478744	478779	478814	22	2. 14	
10. 478849	478884	478920	478955	478990	479025	479060	479096	479131	479166	479201	479237	21	3. 21	
10. 479272	479307	479342	479378	479413	479448	479483	479518	479554	479589	479624	479659	20	4. 28	
10. 479695	479730	479765	479801	479836	479871	479906	479942	479977	480012	480047	480083	19	1" = 7	
10. 480118	480153	480189	480224	480259	480294	480330	480365	480400	480436	480471	480506	18	2. 14	
10. 480542	480577	480612	480648	480683	480718	480754	480789	480824	480860	480895	480930	17	3. 21	
10. 480966	481001	481036	481072	481107	481142	481178	481213	481248	481284	481319	481354	16	4. 28	
10. 481390	481425	481461	481496	481531	481567	481602	481637	481673	481708	481744	481779	15	1" = 7	
10. 481814	481850	481885	481921	481956	481991	482027	482062	482098	482133	482169	482204	14	2. 14	
10. 482239	482275	482310	482346	482381	482417	482452	482487	482523	482558	482594	482629	13	3. 21	
10. 482665	482700	482736	482771	482806	482842	482877	482913	482948	482984	483019	483055	12	4. 28	
10. 483090	483126	483161	483197	483232	483268	483303	483339	483374	483410	483445	483481	11	1" = 7	
10. 483516	483552	483587	483623	483658	483694	483729	483765	483800	483836	483871	483907	10	2. 14	
10. 483942	483978	484014	484049	484085	484120	484156	484191	484227	484262	484298	484334	9	3. 21	
10. 484369	484405	484440	484476	484511	484547	484583	484618	484654	484689	484725	484760	8	4. 28	
10. 484796	484832	484867	484903	484938	484974	485010	485045	485081	485116	485152	485188	7	1" = 7	
10. 485223	485259	485295	485330	485366	485401	485437	485473	485508	485544	485580	485615	6	2. 14	
10. 485651	485687	485722	485758	485794	485829	485865	485901	485936	485972	486008	486043	5	3. 21	
10. 486079	486115	486150	486186	486222	486257	486293	486329	486364	486400	486436	486472	4	4. 29	
10. 486507	486543	486579	486614	486650	486686	486722	486757	486793	486829	486864	486900	3	1" = 7	
10. 486936	486972	487007	487043	487079	487115	487150	487186	487222	487258	487293	487329	2	2. 14	
10. 487365	487401	487436	487472	487508	487544	487580	487615	487651	487687	487723	487758	1	3. 21	
10. 487794	487830	487866	487902	487937	487973	488009	488045	488081	488116	488152	488188	0	4. 29	
60"	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"		Minutes	Proport. parts.
Co-tangent of 18 degrees, or Tangent of 108 degrees.														

LOGARITHMIC TANGENTS.

Tangent of 72 degrees, or Co-tangent of 162 degrees.													
Minutes	0°	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	Minutes
0	10.488224	488260	488296	488331	488367	488403	488439	488475	488511	488546	488582	488618	59
1	10.488654	488690	488726	488761	488797	488833	488869	488905	488941	488977	489013	489048	58
2	10.489084	489120	489156	489192	489228	489264	489300	489336	489371	489407	489443	489479	57
3	10.489515	489551	489587	489623	489659	489695	489731	489766	489802	489838	489874	489910	56
4	10.489946	489982	490018	490054	490090	490126	490162	490198	490234	490270	490306	490342	55
5	10.490378	490413	490449	490485	490521	490557	490593	490629	490665	490701	490737	490773	54
6	10.490809	490845	490881	490917	490953	490989	491025	491061	491097	491133	491169	491205	53
7	10.491241	491277	491313	491349	491385	491422	491458	491494	491530	491566	491602	491638	52
8	10.491674	491710	491746	491782	491818	491854	491890	491926	491962	491998	492034	492071	51
9	10.492107	492143	492179	492215	492251	492287	492323	492359	492395	492431	492468	492504	50
10	10.492540	492576	492612	492648	492684	492720	492756	492793	492829	492865	492901	492937	49
11	10.492973	493009	493046	493082	493118	493154	493190	493226	493262	493299	493335	493371	48
12	10.493407	493443	493479	493516	493552	493588	493624	493660	493697	493733	493769	493805	47
13	10.493841	493878	493914	493950	493986	494022	494059	494095	494131	494167	494203	494240	46
14	10.494276	494312	494348	494385	494421	494457	494493	494530	494566	494602	494638	494675	45
15	10.494711	494747	494783	494820	494856	494892	494928	494965	495001	495037	495074	495110	44
16	10.495146	495182	495219	495255	495291	495328	495364	495400	495437	495473	495509	495545	43
17	10.495582	495618	495654	495691	495727	495763	495800	495836	495872	495909	495945	495981	42
18	10.496018	496054	496090	496127	496163	496200	496236	496272	496309	496345	496381	496418	41
19	10.496454	496490	496527	496563	496600	496636	496672	496709	496745	496782	496818	496854	40
20	10.496891	496927	496964	497000	497036	497073	497109	497146	497182	497219	497255	497291	39
21	10.497328	497364	497401	497437	497474	497510	497547	497583	497619	497656	497692	497729	38
22	10.497765	497802	497838	497875	497911	497948	497984	498021	498057	498094	498130	498167	37
23	10.498203	498240	498276	498313	498349	498386	498422	498459	498495	498532	498568	498605	36
24	10.498641	498677	498714	498751	498787	498824	498860	498897	498933	498970	499007	499043	35
25	10.499080	499116	499153	499189	499226	499263	499299	499336	499372	499409	499445	499482	34
26	10.499519	499555	499592	499628	499665	499702	499738	499775	499811	499848	499885	499921	33
27	10.499959	499994	500031	500068	500104	500141	500178	500214	500251	500287	500324	500361	32
28	10.500397	500434	500471	500507	500544	500581	500617	500654	500691	500727	500764	500801	31
29	10.500837	500874	500911	500947	500984	501021	501057	501094	501131	501168	501204	501241	30
30	10.501278	501314	501351	501388	501425	501461	501498	501535	501571	501608	501645	501682	29
31	10.501718	501755	501792	501829	501865	501902	501939	501976	502012	502049	502086	502123	28
32	10.502159	502196	502233	502270	502306	502343	502380	502417	502454	502490	502527	502564	27
33	10.502600	502637	502674	502711	502748	502785	502822	502858	502895	502932	502969	503006	26
34	10.503043	503079	503116	503153	503190	503227	503264	503300	503337	503374	503411	503448	25
35	10.503485	503522	503558	503595	503632	503669	503706	503743	503780	503817	503854	503890	24
36	10.503927	503964	504001	504038	504075	504112	504149	504186	504223	504259	504296	504333	23
37	10.504370	504407	504444	504481	504518	504555	504592	504629	504666	504703	504740	504776	22
38	10.504813	504850	504887	504924	504961	504998	505035	505072	505109	505146	505183	505220	21
39	10.505257	505294	505331	505368	505405	505442	505479	505516	505553	505590	505627	505664	20
40	10.505701	505738	505775	505812	505849	505886	505923	505960	505997	506034	506071	506108	19
41	10.506145	506183	506220	506257	506294	506331	506368	506405	506442	506479	506516	506553	18
42	10.506590	506627	506664	506702	506739	506776	506813	506850	506887	506924	506961	506998	17
43	10.507035	507073	507110	507147	507184	507221	507258	507295	507332	507369	507407	507444	16
44	10.507481	507518	507555	507592	507629	507667	507704	507741	507778	507815	507852	507890	15
45	10.507927	507964	508001	508038	508076	508113	508150	508187	508224	508261	508299	508336	14
46	10.508373	508410	508447	508485	508522	508559	508596	508634	508671	508708	508745	508782	13
47	10.508820	508857	508894	508931	508969	509006	509043	509080	509118	509155	509192	509229	12
48	10.509267	509304	509341	509379	509416	509453	509490	509528	509565	509602	509640	509677	11
49	10.509714	509751	509789	509826	509863	509901	509938	509975	510013	510050	510087	510125	10
50	10.510162	510199	510237	510274	510311	510349	510386	510423	510461	510498	510535	510573	9
51	10.510610	510647	510685	510722	510760	510797	510834	510872	510909	510946	510984	511021	8
52	10.511059	511096	511133	511171	511208	511246	511283	511320	511358	511395	511433	511470	7
53	10.511508	511545	511582	511620	511657	511695	511732	511770	511807	511845	511882	511919	6
54	10.511957	511994	512032	512069	512107	512144	512182	512219	512257	512294	512332	512369	5
55	10.512407	512444	512482	512519	512557	512594	512632	512669	512707	512744	512782	512819	4
56	10.512857	512894	512932	512969	513007	513044	513082	513119	513157	513195	513232	513270	3
57	10.513307	513345	513382	513420	513457	513495	513533	513570	513608	513645	513683	513720	2
58	10.513758	513796	513833	513871	513908	513946	513984	514021	514059	514096	514134	514172	1
59	10.514209	514247	514285	514322	514360	514397	514435	514473	514510	514548	514586	514623	0
	60"	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	
Co-tangent of 17 degrees, or Tangent of 107 degrees.													
Minutes													Minutes
													Propor. parts.

TABLE XXXVII.
LOGARITHMIC TANGENTS.

511

Tangent of 73 degrees, or Co-tangent of 163 degrees.												Minutes	Proper parts.
	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
4661	514699	514736	514774	514812	514849	514887	514925	514962	515000	515038	515075	59	1" = 8
5113	515151	515188	515226	515264	515301	515339	515377	515415	515452	515490	515528	58	2. 15
5565	515603	515641	515679	515716	515754	515792	515829	515867	515905	515943	515980	57	3. 23
6018	516056	516094	516131	516169	516207	516245	516283	516320	516358	516396	516434	56	4. 30
6471	516509	516547	516585	516623	516660	516698	516736	516774	516812	516849	516887	55	1" = 8
6925	516933	517001	517038	517076	517114	517152	517190	517228	517265	517303	517341	54	2. 15
7379	517417	517455	517493	517530	517568	517606	517644	517682	517720	517758	517795	53	3. 23
7833	517871	517909	517947	517985	518023	518061	518099	518137	518174	518212	518250	52	4. 30
8288	518326	518364	518402	518440	518478	518516	518554	518592	518629	518667	518705	51	1" = 8
8743	518781	518819	518857	518895	518933	518971	519009	519047	519085	519123	519161	50	2. 15
9199	519237	519275	519313	519351	519389	519427	519465	519503	519541	519579	519617	49	3. 23
9655	519693	519731	519769	519807	519845	519883	519921	519959	519997	520035	520073	48	4. 30
10111	520149	520187	520225	520263	520302	520340	520378	520416	520454	520492	520530	47	1" = 8
10568	520606	520644	520682	520720	520758	520797	520835	520873	520911	520949	520987	46	2. 15
11025	521063	521101	521140	521178	521216	521254	521292	521330	521368	521406	521445	45	3. 23
11483	521521	521559	521597	521635	521674	521712	521750	521788	521826	521864	521903	44	4. 30
11941	521979	522017	522055	522093	522132	522170	522208	522246	522284	522323	522361	43	1" = 8
12399	522437	522476	522514	522552	522590	522628	522667	522705	522743	522781	522820	42	2. 15
12858	522899	522937	522975	523011	523049	523087	523126	523164	523202	523241	523279	41	3. 23
13317	523355	523393	523432	523470	523509	523547	523585	523623	523662	523700	523738	40	4. 31
13777	523815	523853	523892	523930	523968	524007	524045	524083	524122	524160	524198	39	1" = 8
14237	524275	524313	524352	524390	524428	524467	524505	524544	524582	524620	524659	38	2. 15
14697	524735	524774	524812	524851	524889	524927	524966	525004	525043	525081	525119	37	3. 23
15158	525196	525235	525273	525312	525350	525388	525427	525465	525504	525542	525581	36	4. 31
15619	525658	525696	525734	525773	525811	525850	525888	525927	525965	526004	526042	35	1" = 8
16081	526119	526158	526196	526235	526273	526312	526350	526389	526427	526466	526504	34	2. 15
16543	526581	526620	526658	526697	526735	526774	526813	526851	526890	526928	526967	33	3. 23
17005	527044	527082	527121	527159	527198	527237	527275	527314	527352	527391	527430	32	4. 31
17468	527507	527545	527584	527623	527661	527700	527738	527777	527816	527854	527893	31	1" = 8
17931	527970	528009	528047	528086	528125	528163	528202	528240	528279	528318	528356	30	2. 15
18395	528434	528472	528511	528550	528588	528627	528666	528704	528743	528782	528821	29	3. 23
18859	528898	528937	528975	529014	529053	529091	529130	529169	529208	529246	529285	28	4. 31
19324	529362	529401	529440	529479	529517	529556	529595	529634	529672	529711	529750	27	1" = 8
19789	529827	529866	529905	529944	529983	530021	530060	530099	530138	530176	530215	26	2. 16
20254	530293	530332	530370	530409	530448	530487	530526	530565	530603	530642	530681	25	3. 23
20720	530759	530798	530836	530875	530914	530953	530992	531031	531069	531108	531147	24	4. 31
21186	531225	531264	531303	531342	531380	531419	531458	531497	531536	531575	531614	23	1" = 8
21653	531692	531731	531769	531808	531847	531886	531925	531964	532003	532042	532081	22	2. 16
22120	532159	532198	532237	532276	532314	532353	532392	532431	532470	532509	532548	21	3. 23
22587	532626	532665	532704	532743	532782	532821	532860	532899	532938	532977	533016	20	4. 31
23055	533094	533133	533172	533211	533250	533289	533328	533367	533406	533445	533484	19	1" = 8
23523	533562	533602	533641	533680	533719	533758	533797	533836	533875	533914	533953	18	2. 16
23991	534031	534070	534109	534149	534188	534227	534266	534305	534344	534383	534422	17	3. 23
24461	534500	534539	534579	534618	534657	534696	534735	534774	534814	534853	534892	16	4. 31
24931	534970	535009	535048	535088	535127	535166	535205	535244	535283	535323	535362	15	1" = 8
25401	535440	535479	535519	535558	535597	535636	535675	535715	535754	535793	535832	14	2. 16
25871	535911	535950	535989	536028	536068	536107	536146	536185	536225	536264	536303	13	3. 24
26342	536382	536421	536460	536499	536539	536578	536617	536657	536696	536735	536774	12	4. 31
26814	536853	536892	536932	536971	537010	537049	537089	537128	537167	537207	537246	11	1" = 8
27285	537325	537364	537403	537443	537482	537521	537561	537600	537640	537679	537718	10	2. 16
27758	537797	537836	537876	537915	537954	537994	538033	538073	538112	538151	538191	9	3. 24
28230	538270	538309	538348	538388	538427	538467	538506	538546	538585	538624	538664	8	4. 32
28703	538743	538782	538822	538861	538901	538940	538979	539019	539058	539098	539137	7	1" = 8
29177	539216	539256	539295	539335	539374	539414	539453	539493	539532	539572	539611	6	2. 16
29651	539690	539730	539769	539809	539848	539888	539927	539967	540006	540046	540086	5	3. 24
30125	540165	540204	540244	540283	540323	540362	540402	540442	540481	540521	540560	4	4. 32
30600	540639	540679	540719	540758	540798	540837	540877	540917	540956	540996	541036	3	1" = 8
31075	541115	541154	541194	541234	541273	541313	541353	541392	541432	541471	541511	2	2. 16
31551	541590	541630	541670	541709	541749	541789	541828	541868	541908	541948	541987	1	3. 24
32027	542067	542106	542146	542186	542225	542265	542305	542345	542384	542424	542464	0	4. 32
	55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proper parts.
Co-tangent of 16 degrees, or Tangent of 106 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 74 degrees, or Co-tangent of 164 degrees.														Minutes	Propor. parts.
Minutes	0'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'			
0	10.542504	542543	542583	542623	542662	542702	542742	542782	542821	542861	542901	542941	59	1"	
1	10.542981	543020	543060	543100	543140	543179	543219	543259	543299	543339	543378	543418	58	2	
2	10.543458	543498	543538	543577	543617	543657	543697	543737	543777	543816	543856	543896	57	3	
3	10.543936	543976	544016	544055	544095	544135	544175	544215	544255	544295	544334	544374	56	4	
4	10.544414	544454	544494	544534	544574	544614	544654	544693	544733	544773	544813	544853	55	1	
5	10.544893	544933	544973	545013	545053	545093	545133	545173	545213	545253	545292	545332	54	2	
6	10.545372	545412	545452	545492	545532	545572	545612	545652	545692	545732	545772	545812	53	3	
7	10.545852	545892	545932	545972	546012	546052	546092	546132	546172	546212	546252	546292	52	4	
8	10.546332	546372	546412	546452	546492	546532	546572	546612	546653	546693	546733	546773	51	1	
9	10.546813	546853	546893	546933	546973	547013	547053	547093	547133	547174	547214	547254	50	2	
10	10.547294	547334	547374	547414	547454	547494	547535	547575	547615	547655	547695	547735	49	3	
11	10.547775	547815	547856	547896	547936	547976	548016	548056	548097	548137	548177	548217	48	4	
12	10.548257	548297	548338	548378	548418	548458	548498	548539	548579	548619	548659	548699	47	1	
13	10.548740	548780	548820	548860	548901	548941	548981	549021	549062	549102	549142	549182	46	2	
14	10.549223	549263	549303	549343	549384	549424	549464	549504	549545	549585	549625	549666	45	3	
15	10.549706	549746	549787	549827	549867	549907	549948	549988	550028	550069	550109	550149	44	4	
16	10.550190	550230	550270	550311	550351	550391	550432	550472	550513	550553	550593	550634	43	1	
17	10.550674	550714	550755	550795	550835	550876	550916	550957	550997	551037	551078	551118	42	2	
18	10.551159	551199	551240	551280	551320	551361	551401	551442	551482	551523	551563	551603	41	3	
19	10.551644	551684	551725	551765	551806	551846	551887	551927	551968	552008	552049	552089	40	4	
20	10.552130	552170	552210	552251	552291	552332	552373	552413	552454	552494	552535	552575	39	1	
21	10.552616	552656	552697	552737	552778	552818	552859	552899	552940	552981	553021	553062	38	2	
22	10.553102	553143	553183	553224	553264	553305	553346	553386	553427	553467	553508	553549	37	3	
23	10.553589	553630	553670	553711	553752	553792	553833	553874	553914	553955	553995	554036	36	4	
24	10.554077	554117	554158	554199	554239	554280	554321	554361	554402	554443	554483	554524	35	1	
25	10.554565	554605	554646	554687	554727	554768	554809	554850	554890	554931	554972	555012	34	2	
26	10.555053	555094	555135	555175	555216	555257	555298	555338	555379	555420	555461	555501	33	3	
27	10.555542	555583	555624	555664	555705	555746	555787	555827	555868	555909	555950	555991	32	4	
28	10.556031	556072	556113	556154	556195	556236	556276	556317	556358	556399	556440	556480	31	1	
29	10.556521	556562	556603	556644	556685	556726	556766	556807	556848	556889	556930	556971	30	2	
30	10.557012	557053	557093	557134	557175	557216	557257	557298	557339	557380	557421	557462	29	3	
31	10.557502	557543	557584	557625	557666	557707	557748	557789	557830	557871	557912	557953	28	4	
32	10.557994	558035	558076	558117	558158	558199	558240	558281	558322	558363	558404	558444	27	1	
33	10.558485	558526	558567	558608	558649	558690	558732	558773	558814	558855	558896	558937	26	2	
34	10.558978	559019	559060	559101	559142	559183	559224	559265	559306	559347	559388	559429	25	3	
35	10.559470	559512	559553	559594	559635	559676	559717	559758	559799	559840	559881	559922	24	4	
36	10.559964	560005	560046	560087	560128	560169	560210	560252	560293	560334	560375	560416	23	1	
37	10.560457	560498	560540	560581	560622	560663	560704	560746	560787	560828	560869	560910	22	2	
38	10.560951	560993	561034	561075	561116	561158	561199	561240	561281	561322	561364	561405	21	3	
39	10.561446	561487	561529	561570	561611	561652	561694	561735	561776	561817	561859	561900	20	4	
40	10.561941	561983	562024	562065	562106	562148	562189	562230	562272	562313	562354	562396	19	1	
41	10.562437	562478	562520	562561	562602	562644	562685	562726	562768	562809	562850	562892	18	2	
42	10.562933	562974	563016	563057	563098	563140	563181	563223	563264	563305	563347	563388	17	3	
43	10.563430	563471	563512	563554	563595	563637	563678	563719	563761	563802	563844	563885	16	4	
44	10.563927	563968	564010	564051	564092	564134	564175	564217	564258	564300	564341	564383	15	1	
45	10.564424	564466	564507	564549	564590	564632	564673	564715	564756	564798	564839	564881	14	2	
46	10.564922	564964	565005	565047	565088	565130	565172	565213	565255	565296	565338	565379	13	3	
47	10.565421	565462	565504	565546	565587	565629	565670	565712	565754	565795	565837	565878	12	4	
48	10.565920	565962	566003	566045	566086	566128	566170	566211	566253	566295	566336	566378	11	1	
49	10.566419	566461	566503	566544	566586	566628	566669	566711	566753	566794	566836	566878	10	2	
50	10.566920	566961	567003	567045	567086	567128	567170	567211	567253	567295	567337	567379	9	3	
51	10.567422	567462	567504	567545	567587	567629	567671	567712	567754	567796	567838	567879	8	4	
52	10.567921	567963	568005	568046	568088	568130	568172	568214	568255	568297	568339	568381	7	1	
53	10.568423	568464	568506	568548	568590	568632	568674	568715	568757	568799	568841	568883	6	2	
54	10.568925	568967	569008	569050	569092	569134	569176	569218	569260	569302	569343	569385	5	3	
55	10.569427	569469	569511	569553	569595	569637	569679	569721	569763	569804	569846	569888	4	4	
56	10.569930	569972	570014	570056	570098	570140	570182	570224	570266	570308	570350	570392	3	1	
57	10.570434	570476	570518	570560	570602	570644	570686	570728	570770	570812	570854	570896	2	2	
58	10.570938	570980	571022	571064	571106	571148	571190	571232	571274	571316	571358	571400	1	3	
59	10.571442	571484	571527	571569	571611	571653	571695	571737	571779	571821	571863	571905	0	4	
60' 55' 50' 45' 40' 35' 30' 25' 20' 15' 10' 5'														Minutes	Propor. parts.
Co-tangent of 15 degrees, or Tangent of 105 degrees.															

LOGARITHMIC TANGENTS.

Tangent of 75 degrees, or Co-tangent of 165 degrees.											Minutes	Proportional parts.
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
571990	572032	572074	572116	572158	572200	572242	572284	572327	572369	572411	59	1" = 8
572495	572537	572579	572621	572664	572706	572748	572790	572833	572875	572917	58	2. 17
573001	573044	573086	573128	573170	573212	573255	573297	573339	573381	573424	57	3. 25
573508	573550	573592	573635	573677	573719	573762	573804	573846	573888	573931	56	4. 34
574015	574057	574100	574142	574184	574227	574269	574311	574354	574396	574438	55	1" = 8
574523	574565	574607	574650	574692	574735	574777	574819	574862	574904	574946	54	2. 17
575031	575073	575116	575158	575201	575243	575285	575328	575370	575413	575455	53	3. 25
575540	575582	575625	575667	575709	575752	575794	575837	575879	575922	575964	52	4. 34
576049	576091	576134	576176	576219	576261	576304	576346	576389	576431	576474	51	1" = 9
576559	576601	576644	576686	576729	576771	576814	576856	576899	576941	576984	50	2. 17
577069	577111	577154	577197	577239	577282	577324	577367	577409	577452	577495	49	3. 26
577580	577622	577665	577708	577750	577793	577835	577878	577921	577963	578006	48	4. 34
578091	578134	578176	578219	578262	578304	578347	578390	578433	578475	578518	47	1" = 9
578603	578646	578688	578731	578774	578816	578859	578902	578944	578987	579030	46	2. 17
579115	579158	579201	579243	579286	579329	579372	579414	579457	579500	579543	45	3. 26
579628	579671	579714	579756	579799	579842	579885	579928	579970	580013	580056	44	4. 34
580142	580184	580227	580270	580313	580356	580398	580441	580484	580527	580570	43	1" = 9
580655	580698	580741	580784	580827	580870	580913	580955	580998	581041	581084	42	2. 17
581170	581213	581256	581299	581342	581384	581427	581470	581513	581556	581599	41	3. 26
581685	581728	581771	581814	581857	581900	581943	581986	582029	582072	582114	40	4. 34
582200	582243	582286	582329	582372	582415	582458	582501	582544	582587	582630	39	1" = 9
582716	582759	582802	582845	582888	582931	582974	583017	583060	583103	583146	38	2. 17
583233	583276	583319	583362	583405	583448	583491	583534	583577	583620	583663	37	3. 26
583750	583793	583836	583879	583922	583965	584008	584051	584094	584137	584180	36	4. 34
584268	584311	584354	584397	584440	584483	584526	584569	584612	584655	584698	35	1" = 9
584786	584829	584872	584915	584958	585001	585044	585087	585130	585173	585216	34	2. 17
585305	585348	585391	585434	585477	585520	585563	585606	585649	585692	585735	33	3. 26
585824	585867	585910	585953	585996	586039	586082	586125	586168	586211	586254	32	4. 35
586344	586387	586430	586473	586516	586559	586602	586645	586688	586731	586774	31	1" = 9
586864	586907	586950	586993	587036	587079	587122	587165	587208	587251	587294	30	2. 17
587385	587428	587471	587514	587557	587600	587643	587686	587729	587772	587815	29	3. 26
587907	587950	587993	588036	588079	588122	588165	588208	588251	588294	588337	28	4. 35
588429	588472	588515	588558	588601	588644	588687	588730	588773	588816	588859	27	1" = 9
588951	588994	589037	589080	589123	589166	589209	589252	589295	589338	589381	26	2. 17
589475	589518	589561	589604	589647	589690	589733	589776	589819	589862	589905	25	3. 26
589998	590041	590084	590127	590170	590213	590256	590299	590342	590385	590428	24	4. 35
590522	590565	590608	590651	590694	590737	590780	590823	590866	590909	590952	23	1" = 9
591047	591090	591133	591176	591219	591262	591305	591348	591391	591434	591477	22	2. 18
591571	591614	591657	591700	591743	591786	591829	591872	591915	591958	592001	21	3. 26
592098	592141	592184	592227	592270	592313	592356	592399	592442	592485	592528	20	4. 35
592625	592668	592711	592754	592797	592840	592883	592926	592969	593012	593055	19	1" = 9
593152	593195	593238	593281	593324	593367	593410	593453	593496	593539	593582	18	2. 18
593680	593723	593766	593809	593852	593895	593938	593981	594024	594067	594110	17	3. 26
594258	594301	594344	594387	594430	594473	594516	594559	594602	594645	594688	16	4. 35
594736	594779	594822	594865	594908	594951	594994	595037	595080	595123	595166	15	1" = 9
595266	595309	595352	595395	595438	595481	595524	595567	595610	595653	595696	14	2. 18
595796	595839	595882	595925	595968	596011	596054	596097	596140	596183	596226	13	3. 26
596326	596369	596412	596455	596498	596541	596584	596627	596670	596713	596756	12	4. 35
596857	596900	596943	596986	597029	597072	597115	597158	597201	597244	597287	11	1" = 9
597388	597431	597474	597517	597560	597603	597646	597689	597732	597775	597818	10	2. 18
597921	597964	598007	598050	598093	598136	598179	598222	598265	598308	598351	9	3. 27
598453	598496	598539	598582	598625	598668	598711	598754	598797	598840	598883	8	4. 35
598987	599030	599073	599116	599159	599202	599245	599288	599331	599374	599417	7	1" = 9
599520	599563	599606	599649	599692	599735	599778	599821	599864	599907	599950	6	2. 18
600055	600098	600141	600184	600227	600270	600313	600356	600399	600442	600485	5	3. 27
600590	600633	600676	600719	600762	600805	600848	600891	600934	600977	601020	4	4. 36
601126	601169	601212	601255	601298	601341	601384	601427	601470	601513	601556	3	1" = 9
601662	601705	601748	601791	601834	601877	601920	601963	602006	602049	602092	2	2. 18
602198	602241	602284	602327	602370	602413	602456	602499	602542	602585	602628	1	3. 27
602730	602773	602816	602859	602902	602945	602988	603031	603074	603117	603160	0	4. 36
55"	50"	45"	40"	35"	30"	25"	20"	15"	10"	5"	Minutes	Proportional parts.
Co-tangent of 14 degrees, or Tangent of 104 degrees.											Minutes	Proportional parts.

LOGARITHMIC TANGENTS.

Tangent of 76 degrees, or Co-tangent of 166 degrees.															
Minutes	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	Minutes	Prepar.	
0	10. 603229	603274	603319	603363	603408	603453	603498	603543	603588	603633	603678	603722	59	1° =	
1	10. 603767	603812	603857	603902	603947	603992	604037	604082	604127	604172	604217	604261	58	2.	
2	10. 604306	604351	604396	604441	604486	604531	604576	604621	604666	604711	604756	604801	57	3.	
3	10. 604846	604891	604936	604981	605026	605071	605116	605161	605206	605251	605296	605341	56	4.	
4	10. 605386	605431	605476	605522	605567	605612	605657	605702	605747	605792	605837	605882	55	1 =	
5	10. 605927	605972	606017	606063	606108	606153	606198	606243	606288	606333	606378	606424	54	2.	
6	10. 606469	606514	606559	606604	606649	606694	606740	606785	606830	606875	606920	606966	53	3.	
7	10. 607011	607056	607101	607146	607192	607237	607282	607327	607372	607418	607463	607508	52	4.	
8	10. 607553	607599	607644	607689	607734	607780	607825	607870	607915	607961	608006	608051	51	1 =	
9	10. 608097	608142	608187	608232	608278	608323	608368	608414	608459	608504	608550	608595	50	2.	
10	10. 608640	608686	608731	608776	608822	608867	608913	608958	609003	609049	609094	609139	49	3.	
11	10. 609185	609230	609276	609321	609366	609412	609457	609503	609548	609594	609639	609684	48	4.	
12	10. 609735	609778	609825	609866	609912	609957	610003	610048	610094	610139	610185	610230	47	1 =	
13	10. 610276	610321	610367	610412	610458	610503	610549	610594	610640	610685	610731	610776	46	2.	
14	10. 610822	610867	610913	610959	611004	611050	611095	611141	611186	611232	611278	611323	45	3.	
15	10. 611369	611414	611460	611506	611551	611597	611642	611688	611734	611779	611825	611871	44	4.	
16	10. 611916	611962	612008	612053	612099	612145	612190	612236	612282	612327	612373	612419	43	1 =	
17	10. 612464	612510	612556	612601	612647	612693	612739	612784	612830	612876	612922	612967	42	2.	
18	10. 613013	613059	613105	613150	613196	613242	613288	613333	613379	613425	613471	613517	41	3.	
19	10. 613562	613608	613654	613700	613746	613791	613837	613883	613929	613975	614021	614066	40	4.	
20	10. 614112	614158	614204	614250	614296	614342	614388	614433	614479	614525	614571	614617	39	1 =	
21	10. 614663	614709	614755	614801	614847	614893	614938	614984	615030	615076	615122	615168	38	2.	
22	10. 615214	615260	615306	615352	615398	615444	615490	615536	615582	615628	615674	615720	37	3.	
23	10. 615766	615812	615858	615904	615950	615996	616042	616088	616134	616180	616226	616272	36	4.	
24	10. 616318	616364	616411	616457	616503	616549	616595	616641	616687	616733	616779	616825	35	1 =	
25	10. 616871	616918	616964	617010	617056	617102	617148	617194	617240	617287	617333	617379	34	2.	
26	10. 617425	617471	617517	617564	617610	617656	617702	617748	617795	617841	617887	617933	33	3.	
27	10. 617979	618026	618072	618118	618164	618211	618257	618303	618349	618396	618442	618488	32	4.	
28	10. 618534	618581	618627	618673	618720	618766	618812	618858	618905	618951	618997	619044	31	1 =	
29	10. 619090	619136	619183	619229	619275	619322	619368	619414	619461	619507	619553	619600	30	2.	
30	10. 619646	619693	619739	619785	619832	619878	619925	619971	620017	620064	620110	620157	29	3.	
31	10. 620203	620250	620296	620342	620389	620435	620482	620528	620575	620621	620668	620714	28	4.	
32	10. 620761	620807	620854	620900	620947	620993	621040	621086	621133	621179	621226	621272	27	1 =	
33	10. 621319	621365	621412	621458	621505	621551	621598	621645	621691	621738	621784	621831	26	2.	
34	10. 621877	621924	621971	622017	622064	622110	622157	622204	622250	622297	622344	622390	25	3.	
35	10. 622437	622484	622530	622577	622623	622670	622717	622763	622810	622857	622904	622950	24	4.	
36	10. 622997	623044	623090	623137	623184	623230	623277	623324	623371	623417	623464	623511	23	1 =	
37	10. 623558	623604	623651	623698	623745	623791	623838	623885	623932	623979	624025	624072	22	2.	
38	10. 624119	624166	624213	624259	624306	624353	624400	624447	624494	624540	624587	624634	21	3.	
39	10. 624681	624728	624775	624822	624868	624915	624962	625009	625056	625103	625150	625197	20	4.	
40	10. 625244	625291	625337	625384	625431	625478	625525	625572	625619	625666	625713	625760	19	1 =	
41	10. 625807	625854	625901	625948	625995	626042	626089	626136	626183	626230	626277	626324	18	2.	
42	10. 626371	626418	626465	626512	626559	626606	626653	626700	626747	626794	626841	626888	17	3.	
43	10. 626935	626983	627030	627077	627124	627171	627218	627265	627312	627359	627407	627454	16	4.	
44	10. 627501	627548	627595	627642	627689	627736	627784	627831	627878	627925	627972	628019	15	1 =	
45	10. 628067	628114	628161	628208	628255	628303	628350	628397	628444	628492	628539	628586	14	2.	
46	10. 628633	628681	628728	628775	628822	628870	628917	628964	629011	629059	629106	629153	13	3.	
47	10. 629201	629248	629295	629342	629390	629437	629484	629532	629579	629626	629674	629721	12	4.	
48	10. 629768	629816	629863	629911	629958	630005	630053	630100	630148	630195	630242	630290	11	1 =	
49	10. 630337	630384	630432	630479	630527	630574	630622	630669	630716	630764	630811	630859	10	2.	
50	10. 630906	630954	631001	631049	631096	631144	631191	631239	631286	631334	631381	631429	9	3.	
51	10. 631476	631524	631571	631619	631666	631714	631761	631809	631856	631904	631952	631999	8	4.	
52	10. 632047	632094	632142	632190	632237	632285	632332	632380	632428	632475	632523	632570	7	1 =	
53	10. 632618	632666	632713	632761	632809	632856	632904	632952	632999	633047	633095	633142	6	2.	
54	10. 633190	633238	633285	633333	633381	633428	633476	633524	633572	633619	633667	633715	5	3.	
55	10. 633763	633810	633858	633906	633954	634001	634049	634097	634145	634192	634240	634288	4	4.	
56	10. 634336	634384	634431	634479	634527	634575	634623	634671	634718	634766	634814	634862	3	1 =	
57	10. 634910	634958	635006	635053	635101	635149	635197	635245	635293	635341	635389	635437	2	2.	
58	10. 635484	635532	635580	635628	635676	635724	635772	635820	635868	635916	635964	636012	1	3.	
59	10. 636060	636108	636156	636204	636252	636300	636348	636396	636444	636492	636540	636588	0	4.	
60° 55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5°															
Co-tangent of 13 degrees, or Tangent of 103 degrees.															
Minutes															Minutes

LOGARITHMIC TANGENTS.

Tangent of 77 degrees, or Co-tangent of 167 degrees.											Minutes	Proport. parts.
5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'		
5636	636684	636732	636780	636828	636876	636924	636972	637020	637068	637116	59	1" = 10
7213	637261	637309	637357	637405	637453	637501	637549	637597	637646	637694	58	2. 19
7790	637838	637886	637934	637983	638031	638079	638127	638175	638223	638272	57	3. 29
8368	638416	638464	638513	638561	638609	638657	638706	638754	638802	638850	56	4. 39
8947	638995	639043	639092	639140	639188	639236	639285	639333	639381	639430	55	1 = 10
9526	639575	639623	639671	639720	639768	639816	639865	639913	639961	640010	54	2. 19
106	640155	640203	640252	640300	640348	640397	640445	640494	640542	640591	53	3. 29
1687	640736	640784	640833	640881	640930	640978	641027	641075	641123	641172	52	4. 39
269	641317	641366	641414	641463	641511	641560	641609	641657	641706	641754	51	1 = 10
851	641900	641948	641997	642045	642094	642143	642191	642240	642288	642337	50	2. 19
434	642483	642531	642580	642629	642677	642726	642775	642823	642872	642921	49	3. 29
018	643067	643115	643164	643213	643261	643310	643359	643407	643456	643505	48	4. 39
602	643651	643700	643748	643797	643846	643895	643944	643992	644041	644090	47	1 = 10
187	644236	644285	644334	644383	644431	644480	644529	644578	644627	644676	46	2. 20
773	644822	644871	644920	644969	645018	645066	645115	645164	645213	645262	45	3. 29
360	645409	645458	645506	645555	645604	645653	645702	645751	645800	645849	44	4. 39
947	645996	646045	646094	646143	646192	646241	646290	646339	646388	646437	43	1 = 10
535	646584	646633	646682	646731	646780	646829	646878	646927	646976	647025	42	2. 20
124	647173	647222	647271	647320	647369	647418	647467	647516	647565	647615	41	3. 29
713	647762	647811	647861	647910	647959	648008	648057	648106	648156	648205	40	4. 39
303	648352	648402	648451	648500	648549	648599	648648	648697	648746	648795	39	1 = 10
894	648943	648993	649042	649091	649140	649190	649239	649288	649338	649387	38	2. 20
486	649535	649584	649634	649683	649732	649782	649831	649880	649930	649979	37	3. 30
078	650127	650177	650226	650276	650325	650374	650424	650473	650523	650572	36	4. 39
671	650720	650770	650819	650869	650918	650968	651017	651067	651116	651166	35	1 = 10
265	651314	651364	651413	651463	651512	651562	651611	651661	651711	651760	34	2. 20
859	651909	651958	652008	652058	652107	652157	652206	652256	652306	652355	33	3. 30
455	652504	652554	652603	652653	652703	652752	652802	652852	652901	652951	32	4. 40
251	653100	653150	653200	653249	653299	653349	653399	653448	653498	653548	31	1 = 10
847	653697	653747	653797	653846	653896	653946	653996	654045	654095	654145	30	2. 20
443	654295	654344	654394	654444	654494	654544	654594	654643	654693	654743	29	3. 30
833	654893	654943	654993	655043	655092	655142	655192	655242	655292	655342	28	4. 40
142	655492	655542	655592	655642	655692	655742	655792	655842	655892	655942	27	1 = 10
242	656092	656142	656192	656242	656292	656342	656392	656442	656492	656542	26	2. 20
442	656692	656742	656792	656842	656893	656943	656993	657043	657093	657143	25	3. 30
143	657293	657344	657394	657444	657494	657544	657594	657645	657695	657745	24	4. 40
145	657896	657946	657996	658046	658096	658147	658197	658247	658297	658348	23	1 = 10
448	658498	658548	658599	658649	658699	658750	658800	658850	658901	658951	22	2. 20
152	659103	659152	659203	659253	659303	659354	659404	659454	659505	659555	21	3. 30
656	659706	659757	659807	659857	659908	659958	660009	660059	660110	660160	20	4. 40
61	660311	660362	660412	660463	660513	660564	660614	660665	660715	660766	19	1 = 10
67	660917	660968	661018	661069	661119	661170	661220	661271	661322	661372	18	2. 20
73	661524	661574	661625	661676	661726	661777	661827	661878	661929	661979	17	3. 30
81	662131	662182	662233	662283	662334	662385	662435	662486	662537	662587	16	4. 40
86	662739	662790	662841	662892	662942	662993	663044	663095	663145	663196	15	1 = 10
98	663348	663399	663450	663501	663551	663602	663653	663704	663755	663806	14	2. 20
107	663958	664009	664060	664111	664161	664212	664263	664314	664365	664416	13	3. 31
118	664569	664619	664670	664721	664772	664823	664874	664925	664976	665027	12	4. 41
29	665180	665231	665282	665333	665384	665435	665486	665537	665588	665639	11	1 = 10
47	665792	665843	665894	665945	665996	666047	666098	666149	666200	666252	10	2. 20
54	666405	666456	666507	666558	666609	666660	666712	666763	666814	666865	9	3. 31
67	667018	667070	667121	667172	667223	667274	667326	667377	667428	667479	8	4. 41
82	667633	667684	667735	667787	667838	667889	667940	667992	668043	668094	7	1 = 10
97	668244	668295	668346	668397	668448	668499	668550	668601	668652	668703	6	2. 21
113	668864	668916	668967	669018	669070	669121	669172	669224	669275	669327	5	3. 31
130	669481	669532	669584	669635	669687	669738	669790	669841	669893	669944	4	4. 41
247	670099	670150	670202	670253	670305	670356	670408	670459	670511	670562	3	1 = 10
365	670717	670769	670820	670872	670923	670975	671027	671078	671130	671181	2	2. 21
285	671336	671388	671440	671491	671543	671595	671646	671698	671750	671801	1	3. 31
305	671956	672008	672060	672111	672163	672215	672267	672318	672370	672422	0	4. 41
55'	50'	45'	40'	35'	30'	25'	20'	15'	10'	5'	Minutes	Proport. parts.
Co-tangent of 12 degrees, or Tangent of 102 degrees.												

LOGARITHMIC TANGENTS.

Minutes		Tangent of 78 degrees, or Co-tangent of 168 degrees.												Minutes	Prop.
		0"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"		
0	10. 672525	672577	672629	672681	672733	672784	672836	672888	672940	672992	673043	673095	59	1	
1	10. 673147	673199	673251	673303	673354	673406	673458	673510	673562	673614	673666	673718	58	2	
2	10. 673769	673821	673873	673925	673977	674029	674081	674133	674185	674237	674289	674341	57	3	
3	10. 674393	674445	674497	674549	674601	674653	674705	674757	674809	674861	674913	674965	56	4	
4	10. 675017	675069	675121	675173	675225	675277	675329	675381	675433	675485	675537	675589	55	1	
5	10. 675642	675694	675746	675798	675850	675902	675954	676006	676059	676111	676163	676215	54	2	
6	10. 676267	676319	676372	676424	676476	676528	676580	676633	676685	676737	676789	676842	53	3	
7	10. 676894	676946	676998	677051	677103	677155	677207	677260	677312	677364	677417	677469	52	4	
8	10. 677521	677573	677626	677678	677730	677783	677835	677887	677940	677992	678045	678097	51	1	
9	10. 678149	678202	678254	678307	678359	678411	678464	678516	678569	678621	678673	678726	50	2	
10	10. 678778	678831	678883	678936	678988	679041	679093	679146	679198	679251	679303	679356	49	3	
11	10. 679408	679461	679513	679566	679618	679671	679723	679776	679829	679881	679934	679986	48	4	
12	10. 680039	680091	680144	680197	680249	680302	680355	680407	680460	680512	680565	680618	47	1	
13	10. 680670	680723	680776	680828	680881	680934	680986	681039	681092	681145	681197	681250	46	2	
14	10. 681303	681356	681408	681461	681514	681567	681619	681672	681725	681778	681831	681883	45	3	
15	10. 681936	681989	682042	682094	682147	682200	682253	682306	682359	682411	682464	682517	44	4	
16	10. 682570	682623	682676	682729	682782	682834	682887	682940	682993	683046	683099	683152	43	1	
17	10. 683205	683258	683311	683364	683417	683470	683523	683576	683629	683682	683735	683788	42	2	
18	10. 683841	683894	683947	684000	684053	684106	684159	684212	684265	684318	684371	684424	41	3	
19	10. 684477	684530	684584	684637	684690	684743	684796	684849	684902	684955	685009	685062	40	4	
20	10. 685115	685168	685221	685274	685328	685381	685434	685487	685540	685593	685647	685700	39	1	
21	10. 685753	685806	685859	685913	685966	686019	686073	686126	686179	686232	686286	686339	38	2	
22	10. 686392	686446	686499	686552	686606	686659	686712	686766	686819	686872	686926	686979	37	3	
23	10. 687032	687086	687139	687193	687246	687299	687353	687406	687460	687513	687566	687620	36	4	
24	10. 687673	687727	687780	687834	687887	687941	687994	688048	688101	688155	688208	688262	35	1	
25	10. 688315	688369	688422	688476	688529	688583	688636	688690	688744	688797	688851	688904	34	2	
26	10. 688958	689011	689065	689119	689172	689226	689280	689333	689387	689440	689494	689548	33	3	
27	10. 689601	689655	689709	689762	689816	689870	689924	689977	690031	690085	690138	690192	32	4	
28	10. 690246	690300	690353	690407	690461	690515	690568	690622	690676	690730	690784	690837	31	1	
29	10. 690891	690945	690999	691053	691106	691160	691214	691268	691322	691376	691430	691483	30	2	
30	10. 691537	691591	691645	691699	691753	691807	691861	691915	691969	692023	692077	692130	29	3	
31	10. 692184	692238	692292	692346	692400	692454	692508	692562	692616	692670	692724	692778	28	4	
32	10. 692832	692886	692940	692995	693049	693103	693157	693211	693265	693319	693373	693427	27	1	
33	10. 693481	693535	693589	693644	693698	693752	693806	693860	693914	693969	694023	694077	26	2	
34	10. 694131	694185	694239	694294	694348	694402	694456	694510	694565	694619	694673	694727	25	3	
35	10. 694782	694836	694890	694944	694999	695053	695107	695162	695216	695270	695325	695379	24	4	
36	10. 695433	695488	695542	695596	695651	695705	695759	695814	695868	695922	695977	696031	23	1	
37	10. 696086	696140	696195	696249	696303	696358	696412	696467	696521	696576	696630	696685	22	2	
38	10. 696739	696794	696848	696903	696957	697012	697066	697121	697175	697230	697284	697339	21	3	
39	10. 697393	697448	697502	697557	697612	697666	697721	697775	697830	697885	697939	697994	20	4	
40	10. 698049	698103	698158	698212	698267	698322	698376	698431	698486	698540	698595	698650	19	1	
41	10. 698705	698759	698814	698869	698924	698978	699033	699088	699143	699197	699252	699307	18	2	
42	10. 699362	699416	699471	699526	699581	699636	699690	699745	699800	699855	699910	699965	17	3	
43	10. 700020	700074	700129	700184	700239	700294	700349	700404	700459	700514	700569	700623	16	4	
44	10. 700678	700733	700788	700843	700898	700953	701008	701063	701118	701173	701228	701283	15	1	
45	10. 701338	701393	701448	701503	701558	701613	701668	701723	701779	701834	701889	701944	14	2	
46	10. 701999	702054	702109	702164	702219	702274	702330	702385	702440	702495	702550	702605	13	3	
47	10. 702660	702716	702771	702826	702881	702936	702992	703047	703102	703157	703213	703268	12	4	
48	10. 703323	703378	703434	703489	703544	703599	703655	703710	703765	703821	703876	703931	11	1	
49	10. 703987	704042	704097	704153	704208	704263	704319	704374	704429	704485	704540	704596	10	2	
50	10. 704651	704706	704762	704817	704873	704928	704984	705039	705094	705150	705205	705261	9	3	
51	10. 705316	705372	705427	705483	705538	705594	705649	705705	705761	705816	705872	705927	8	4	
52	10. 705983	706038	706094	706149	706205	706261	706316	706372	706427	706483	706539	706594	7	1	
53	10. 706650	706706	706761	706817	706873	706928	706984	707040	707095	707151	707207	707262	6	2	
54	10. 707318	707374	707430	707485	707541	707597	707653	707708	707764	707820	707876	707932	5	3	
55	10. 707987	708043	708099	708155	708211	708266	708322	708378	708434	708490	708546	708602	4	4	
56	10. 708658	708713	708769	708825	708881	708937	708993	709049	709105	709161	709217	709273	3	1	
57	10. 709329	709385	709441	709497	709553	709609	709665	709721	709777	709833	709889	709945	2	2	
58	10. 710001	710057	710113	710169	710225	710281	710337	710393	710449	710505	710561	710618	1	3	
59	10. 710674	710730	710786	710842	710898	710954	711011	711067	711123	711179	711235	711291	0	4	
		60	55	50	45	40	35	30	25	20	15	10	5		
Co-tangent of 11 degrees, or Tangent of 101 degrees.															

LOGARITHMIC TANGENTS.

Tangent of 79 degrees, or Co-tangent of 169 degrees.												Minutes	Proport. parts.
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°		
10. 711348	711404	711460	711516	711573	711629	711685	711741	711798	711854	711910	711966	59	1" = 11
10. 712023	712079	712135	712192	712248	712304	712360	712417	712473	712530	712586	712642	58	2. 23
10. 712699	712755	712811	712868	712924	712981	713037	713093	713150	713206	713263	713319	57	3. 34
10. 713375	713432	713488	713545	713601	713658	713714	713771	713827	713884	713940	713997	56	4. 45
10. 714053	714110	714166	714223	714280	714336	714393	714449	714506	714562	714619	714676	55	1 = 11
10. 714732	714789	714845	714902	714959	715015	715072	715129	715185	715242	715299	715355	54	2. 23
10. 715412	715469	715526	715583	715639	715696	715752	715809	715866	715923	715979	716036	53	3. 34
10. 716093	716150	716207	716263	716320	716377	716434	716491	716547	716604	716661	716718	52	4. 45
10. 716775	716832	716889	716945	717002	717059	717116	717173	717230	717287	717344	717401	51	1 = 11
10. 717458	717515	717572	717629	717685	717742	717799	717856	717913	717970	718027	718084	50	2. 23
10. 718141	718199	718256	718313	718370	718427	718484	718541	718598	718655	718712	718769	49	3. 34
10. 718826	718883	718941	718998	719055	719112	719169	719226	719283	719341	719398	719455	48	4. 46
10. 719512	719569	719627	719684	719741	719798	719855	719913	719970	720027	720084	720142	47	1 = 11
10. 720199	720256	720314	720371	720428	720486	720543	720600	720657	720715	720772	720830	46	2. 23
10. 720887	720944	721002	721059	721116	721174	721231	721289	721346	721403	721461	721518	45	3. 34
10. 721576	721633	721691	721748	721806	721863	721921	721978	722036	722093	722151	722208	44	4. 46
10. 722266	722323	722381	722438	722496	722553	722611	722669	722726	722784	722841	722899	43	1 = 12
10. 722957	723014	723072	723129	723187	723245	723302	723360	723418	723475	723533	723591	42	2. 23
10. 723649	723706	723764	723822	723879	723937	723995	724053	724110	724168	724226	724284	41	3. 35
10. 724342	724399	724457	724515	724573	724631	724688	724746	724804	724862	724920	724978	40	4. 46
10. 725036	725093	725151	725209	725267	725325	725383	725441	725499	725557	725615	725673	39	1 = 12
10. 725731	725789	725847	725904	725962	726020	726078	726136	726194	726253	726311	726369	38	2. 23
10. 726427	726485	726543	726601	726659	726717	726775	726833	726891	726949	727008	727066	37	3. 35
10. 727124	727182	727240	727298	727356	727415	727473	727531	727589	727647	727705	727764	36	4. 46
10. 727822	727880	727938	727997	728055	728113	728171	728230	728288	728346	728405	728463	35	1 = 12
10. 728521	728579	728638	728696	728754	728813	728871	728929	728988	729046	729105	729163	34	2. 23
10. 729221	729280	729338	729397	729455	729513	729572	729630	729689	729747	729806	729864	33	3. 35
10. 729923	729981	730040	730098	730157	730215	730274	730332	730391	730449	730508	730567	32	4. 47
10. 730625	730684	730742	730801	730859	730918	730977	731035	731094	731153	731211	731270	31	1 = 12
10. 731329	731387	731446	731505	731563	731622	731681	731739	731798	731857	731916	731974	30	2. 24
10. 732033	732092	732151	732209	732268	732327	732386	732444	732503	732562	732621	732680	29	3. 35
10. 732749	732797	732856	732915	732974	733033	733092	733151	733210	733268	733327	733386	28	4. 47
10. 733445	733504	733563	733622	733681	733740	733799	733858	733917	733976	734035	734094	27	1 = 12
10. 734153	734212	734271	734330	734389	734448	734507	734566	734625	734684	734743	734802	26	2. 24
10. 734862	734921	734980	735039	735098	735157	735217	735276	735335	735394	735453	735512	25	3. 35
10. 735572	735631	735690	735749	735808	735867	735927	735986	736045	736105	736164	736223	24	4. 47
10. 736283	736342	736401	736460	736519	736578	736638	736697	736757	736816	736876	736935	23	1 = 12
10. 736995	737054	737113	737173	737232	737291	737351	737411	737470	737529	737589	737648	22	2. 24
10. 737708	737767	737827	737886	737946	738005	738065	738124	738184	738243	738303	738362	21	3. 36
10. 738422	738482	738541	738601	738660	738720	738780	738839	738899	738958	739018	739078	20	4. 48
10. 739137	739197	739257	739316	739376	739436	739495	739555	739615	739675	739734	739794	19	1 = 12
10. 739854	739914	739973	740033	740093	740153	740212	740272	740332	740392	740452	740512	18	2. 24
10. 740571	740631	740691	740751	740811	740871	740931	740991	741050	741110	741170	741230	17	3. 36
10. 741290	741350	741410	741470	741530	741590	741650	741710	741770	741830	741890	741950	16	4. 48
10. 742010	742070	742130	742190	742250	742310	742370	742430	742490	742550	742611	742671	15	1 = 12
10. 742731	742791	742851	742911	742971	743031	743092	743152	743212	743272	743332	743393	14	2. 24
10. 743453	743513	743573	743633	743694	743754	743814	743874	743935	743995	744055	744116	13	3. 36
10. 744176	744236	744297	744357	744417	744478	744538	744598	744659	744719	744779	744840	12	4. 48
10. 744900	744961	745021	745081	745142	745202	745263	745323	745384	745444	745505	745565	11	1 = 12
10. 745626	745686	745747	745807	745868	745928	745989	746049	746110	746170	746231	746291	10	2. 24
10. 746352	746413	746473	746534	746595	746655	746716	746777	746837	746898	746959	747019	9	3. 36
10. 747080	747141	747201	747262	747323	747383	747444	747505	747566	747626	747687	747748	8	4. 48
10. 747809	747870	747930	747991	748052	748113	748174	748234	748295	748356	748417	748478	7	1 = 12
10. 748539	748600	748661	748721	748782	748843	748904	748965	749026	749087	749148	749209	6	2. 24
10. 749270	749331	749392	749453	749514	749575	749636	749697	749758	749819	749880	749941	5	3. 37
10. 750002	750063	750124	750185	750247	750308	750369	750430	750491	750552	750613	750674	4	4. 49
10. 750736	750797	750858	750919	750980	751042	751103	751164	751225	751287	751348	751409	3	1 = 12
10. 751470	751532	751593	751654	751715	751777	751838	751899	751961	752022	752083	752145	2	2. 25
10. 752206	752267	752329	752390	752452	752513	752574	752636	752697	752759	752820	752882	1	3. 37
10. 752943	753005	753066	753127	753189	753250	753312	753373	753435	753497	753558	753620	0	4. 49
60°	55°	50°	45°	40°	35°	30°	25°	20°	15°	10°	5°	Minutes	Proport. parts.
Co-tangent of 10 degrees, or Tangent of 100 degrees.												Minutes	Proport. parts.

LOGARITHMIC TANGENTS.

Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees.			Minutes	Seconds	Proport. parts.	Minutes	Seconds	Tangent of 80 degrees, or Co-tangent of 170 degrees.			Minutes	Seconds	Proport. parts.
		0"	5"	10"						0"	5"	10"			
0	0	10.753681	10.753743	10.753804	45	0	1" = 12	15	0	10.764897	10.764960	10.765024	15	0	10.765087
15	0	10.753866	10.753927	10.753989	30	15	2. 25	15	15	10.765087	10.765150	10.765213	15	15	10.765276
30	0	10.754051	10.754112	10.754174	15	30	3. 37	30	30	10.765276	10.765339	10.765402	30	30	10.765465
45	0	10.754236	10.754297	10.754359	0	45	4. 49	45	45	10.765465	10.765529	10.765592	45	45	10.765655
1	0	10.754421	10.754482	10.754544	45	1	1" = 12	16	0	10.765655	10.765718	10.765781	16	0	10.765844
15	0	10.754606	10.754667	10.754729	30	15	2. 25	15	15	10.765844	10.765908	10.765971	15	15	10.766034
30	0	10.754791	10.754852	10.754914	15	30	3. 37	30	30	10.766034	10.766097	10.766161	30	30	10.766224
45	0	10.754976	10.755038	10.755099	0	45	4. 49	45	45	10.766224	10.766287	10.766350	45	45	10.766414
2	0	10.755161	10.755223	10.755285	45	2	1" = 12	17	0	10.766414	10.766477	10.766540	17	0	10.766604
15	0	10.755346	10.755408	10.755470	30	15	2. 25	15	15	10.766604	10.766667	10.766730	15	15	10.766794
30	0	10.755532	10.755594	10.755655	15	30	3. 37	30	30	10.766794	10.766857	10.766920	30	30	10.766984
45	0	10.755717	10.755779	10.755841	0	45	4. 49	45	45	10.766984	10.767047	10.767110	45	45	10.767174
3	0	10.755903	10.755965	10.756026	45	3	1" = 12	18	0	10.767174	10.767237	10.767300	18	0	10.767364
15	0	10.756088	10.756150	10.756212	30	15	2. 25	15	15	10.767364	10.767427	10.767491	15	15	10.767554
30	0	10.756274	10.756336	10.756398	15	30	3. 37	30	30	10.767554	10.767618	10.767681	30	30	10.767745
45	0	10.756460	10.756522	10.756584	0	45	4. 50	45	45	10.767745	10.767808	10.767872	45	45	10.767935
4	0	10.756646	10.756708	10.756770	45	4	1" = 12	19	0	10.767935	10.767998	10.768062	19	0	10.768126
15	0	10.756832	10.756894	10.756956	30	15	2. 25	15	15	10.768126	10.768189	10.768253	15	15	10.768316
30	0	10.757018	10.757080	10.757142	15	30	3. 37	30	30	10.768316	10.768380	10.768443	30	30	10.768507
45	0	10.757204	10.757266	10.757328	0	45	4. 50	45	45	10.768507	10.768570	10.768634	45	45	10.768698
5	0	10.757390	10.757452	10.757514	45	5	1" = 12	20	0	10.768698	10.768761	10.768825	20	0	10.768888
15	0	10.757576	10.757638	10.757700	30	15	2. 25	15	15	10.768888	10.768952	10.769016	15	15	10.769079
30	0	10.757762	10.757824	10.757886	15	30	3. 37	30	30	10.769079	10.769143	10.769207	30	30	10.769270
45	0	10.757949	10.758011	10.758073	0	45	4. 50	45	45	10.769270	10.769334	10.769398	45	45	10.769461
6	0	10.758135	10.758197	10.758259	45	6	1" = 12	21	0	10.769461	10.769525	10.769589	21	0	10.769653
15	0	10.758322	10.758384	10.758446	30	15	2. 25	15	15	10.769653	10.769716	10.769780	15	15	10.769844
30	0	10.758508	10.758570	10.758633	15	30	3. 37	30	30	10.769844	10.769908	10.769971	30	30	10.770035
45	0	10.758695	10.758757	10.758819	0	45	4. 50	45	45	10.770035	10.770099	10.770163	45	45	10.770226
7	0	10.758881	10.758944	10.759006	45	7	1" = 12	22	0	10.770226	10.770290	10.770354	22	0	10.770418
15	0	10.759068	10.759131	10.759193	30	15	2. 25	15	15	10.770418	10.770482	10.770546	15	15	10.770609
30	0	10.759255	10.759318	10.759380	15	30	3. 37	30	30	10.770609	10.770673	10.770737	30	30	10.770801
45	0	10.759442	10.759504	10.759567	0	45	4. 50	45	45	10.770801	10.770865	10.770929	45	45	10.770993
8	0	10.759629	10.759692	10.759754	45	8	1" = 12	23	0	10.770993	10.771057	10.771121	23	0	10.771185
15	0	10.759816	10.759879	10.759941	30	15	2. 25	15	15	10.771185	10.771249	10.771313	15	15	10.771376
30	0	10.760004	10.760066	10.760128	15	30	3. 37	30	30	10.771376	10.771440	10.771504	30	30	10.771568
45	0	10.760191	10.760253	10.760316	0	45	4. 50	45	45	10.771568	10.771632	10.771696	45	45	10.771760
9	0	10.760378	10.760441	10.760503	45	9	1" = 13	24	0	10.771760	10.771824	10.771889	24	0	10.771953
15	0	10.760566	10.760628	10.760691	30	15	2. 25	15	15	10.771953	10.772017	10.772081	15	15	10.772145
30	0	10.760753	10.760816	10.760878	15	30	3. 38	30	30	10.772145	10.772209	10.772273	30	30	10.772337
45	0	10.760941	10.761003	10.761066	0	45	4. 50	45	45	10.772337	10.772401	10.772465	45	45	10.772529
10	0	10.761128	10.761191	10.761253	45	10	1" = 13	25	0	10.772529	10.772594	10.772658	25	0	10.772722
15	0	10.761316	10.761379	10.761441	30	15	2. 25	15	15	10.772722	10.772786	10.772850	15	15	10.772914
30	0	10.761504	10.761566	10.761629	15	30	3. 38	30	30	10.772914	10.772979	10.773043	30	30	10.773107
45	0	10.761692	10.761754	10.761817	0	45	4. 50	45	45	10.773107	10.773171	10.773235	45	45	10.773300
11	0	10.761880	10.761942	10.762005	45	11	1" = 13	26	0	10.773300	10.773364	10.773428	26	0	10.773492
15	0	10.762068	10.762130	10.762193	30	15	2. 25	15	15	10.773492	10.773557	10.773621	15	15	10.773685
30	0	10.762256	10.762318	10.762381	15	30	3. 38	30	30	10.773685	10.773749	10.773814	30	30	10.773878
45	0	10.762444	10.762507	10.762569	0	45	4. 50	45	45	10.773878	10.773942	10.774007	45	45	10.774071
12	0	10.762632	10.762695	10.762758	45	12	1" = 13	27	0	10.774071	10.774135	10.774200	27	0	10.774264
15	0	10.762821	10.762883	10.762946	30	15	2. 25	15	15	10.774264	10.774329	10.774393	15	15	10.774457
30	0	10.763009	10.763072	10.763135	15	30	3. 38	30	30	10.774457	10.774522	10.774586	30	30	10.774651
45	0	10.763197	10.763260	10.763323	0	45	4. 50	45	45	10.774651	10.774715	10.774779	45	45	10.774844
13	0	10.763386	10.763449	10.763512	45	13	1" = 13	28	0	10.774844	10.774908	10.774973	28	0	10.775037
15	0	10.763575	10.763638	10.763700	30	15	2. 25	15	15	10.775037	10.775102	10.775166	15	15	10.775231
30	0	10.763763	10.763826	10.763889	15	30	3. 38	30	30	10.775231	10.775295	10.775360	30	30	10.775424
45	0	10.763952	10.764015	10.764078	0	45	4. 50	45	45	10.775424	10.775489	10.775553	45	45	10.775618
14	0	10.764141	10.764204	10.764267	45	14	1" = 13	29	0	10.775618	10.775683	10.775747	29	0	10.775812
15	0	10.764330	10.764393	10.764456	30	15	2. 25	15	15	10.775812	10.775876	10.775941	15	15	10.776006
30	0	10.764519	10.764582	10.764645	15	30	3. 38	30	30	10.776006	10.776070	10.776135	30	30	10.776199
45	0	10.764708	10.764771	10.764834	0	45	4. 50	45	45	10.776199	10.776264	10.776329	45	45	
Minutes	Seconds	15"	10"	5"	Minutes	Seconds	Proport. parts.	Minutes	Seconds	15"	10"	5"	Minutes	Seconds	Proport. parts.
		Co-tangent of 9 degrees, or Tangent of 99 degrees.								Co-tangent of 9 degrees, or Tangent of 99 degrees.					

LOGARITHMIC TANGENTS.

Tangent of 80 degrees, or Co-tangent of 170 degrees.			Tangent of 80 degrees, or Co-tangent of 170 degrees.		
5'	10'	Seconds	0'	5'	10'
10.776458	10.776523	45	10.788185	10.788251	10.788317
10.776652	10.776717	30	10.788384	10.788450	10.788517
10.776846	10.776911	15	10.788583	10.788649	10.788716
10.777041	10.777105	0	10.788782	10.788849	10.788915
10.777235	10.777300	45	10.788982	10.789048	10.789115
10.777429	10.777494	30	10.789181	10.789248	10.789314
10.777624	10.777689	15	10.789381	10.789447	10.789514
10.777818	10.777883	0	10.789580	10.789647	10.789713
10.778013	10.778078	45	10.789780	10.789847	10.789913
10.778208	10.778273	30	10.789980	10.790046	10.790113
10.778403	10.778468	15	10.790180	10.790246	10.790313
10.778598	10.778663	0	10.790380	10.790446	10.790513
10.778793	10.778858	45	10.790580	10.790646	10.790713
10.778988	10.779053	30	10.790780	10.790847	10.790913
10.779183	10.779248	15	10.790980	10.791047	10.791114
10.779378	10.779443	0	10.791180	10.791247	10.791314
10.779573	10.779638	45	10.791381	10.791448	10.791515
10.779769	10.779834	30	10.791581	10.791648	10.791715
10.779964	10.780029	15	10.791782	10.791849	10.791916
10.780160	10.780225	0	10.791983	10.792050	10.792116
10.780355	10.780421	45	10.792183	10.792250	10.792317
10.780551	10.780616	30	10.792384	10.792451	10.792518
10.780747	10.780812	15	10.792585	10.792652	10.792719
10.780943	10.781008	0	10.792786	10.792853	10.792920
10.781139	10.781204	45	10.792987	10.793054	10.793122
10.781335	10.781400	30	10.793189	10.793256	10.793323
10.781531	10.781597	15	10.793390	10.793457	10.793524
10.781727	10.781793	0	10.793591	10.793658	10.793726
10.781924	10.781989	45	10.793793	10.793860	10.793927
10.782120	10.782186	30	10.793994	10.794062	10.794129
10.782317	10.782382	15	10.794196	10.794263	10.794330
10.782513	10.782579	0	10.794398	10.794465	10.794532
10.782710	10.782775	45	10.794600	10.794667	10.794734
10.782907	10.782972	30	10.794801	10.794869	10.794936
10.783103	10.783169	15	10.795004	10.795071	10.795138
10.783300	10.783366	0	10.795206	10.795273	10.795340
10.783497	10.783563	45	10.795408	10.795475	10.795543
10.783694	10.783760	30	10.795610	10.795678	10.795745
10.783892	10.783957	15	10.795812	10.795880	10.795947
10.784089	10.784155	0	10.796015	10.796082	10.796150
10.784286	10.784352	45	10.796217	10.796285	10.796353
10.784484	10.784549	30	10.796420	10.796488	10.796555
10.784681	10.784747	15	10.796623	10.796690	10.796758
10.784879	10.784945	0	10.796826	10.796893	10.796961
10.785076	10.785142	45	10.797029	10.797096	10.797164
10.785274	10.785340	30	10.797232	10.797299	10.797367
10.785472	10.785538	15	10.797435	10.797502	10.797570
10.785670	10.785736	0	10.797638	10.797706	10.797773
10.785868	10.785934	45	10.797841	10.797909	10.797977
10.786066	10.786132	30	10.798044	10.798112	10.798180
10.786264	10.786330	15	10.798248	10.798316	10.798384
10.786463	10.786529	0	10.798451	10.798519	10.798587
10.786661	10.786727	45	10.798655	10.798723	10.798791
10.786859	10.786926	30	10.798859	10.798927	10.798995
10.787058	10.787124	15	10.799063	10.799131	10.799199
10.787257	10.787323	0	10.799267	10.799335	10.799403
10.787455	10.787522	45	10.799471	10.799539	10.799607
10.787654	10.787720	30	10.799675	10.799743	10.799811
10.787853	10.787919	15	10.799879	10.799947	10.800015
10.788052	10.788118	0	10.800083	10.800151	10.800219
10'	5'	Seconds	15'	10'	5'
Tangent of 9 degrees, or Co-tangent of 99 degrees.			Co-tangent of 9 degrees, or Tangent of 99 degrees.		

LOGARITHMIC TANGENTS.

Minutes		Tangent of 81 degrees, or Co-tangent of 171 degrees.			Minutes		Proport. parts.	Minutes		Tangent of 81 degrees, or Co-tangent of 171 degrees.			Minutes	
Seconds		0"	5"	10"	Seconds			Seconds		0"	5"	10"	Seconds	
0	0	10.800287	10.800356	10.800424	45	1"	14	15	0	10.812720	10.812790	10.812860	45	1"
15		10.800492	10.800560	10.800628	30	2	27	15	15	10.812930	10.813000	10.813070	30	2
30		10.800696	10.800765	10.800833	15	3	41	30	15	10.813140	10.813210	10.813280	15	3
45		10.800901	10.800969	10.801038	0	4	55	45	30	10.813350	10.813421	10.813491	0	4
1	0	10.801106	10.801174	10.801242	45	1"	14	16	0	10.813561	10.813631	10.813701	45	1"
15		10.801311	10.801379	10.801447	30	2	27	15	15	10.813771	10.813841	10.813912	30	2
30		10.801516	10.801584	10.801652	15	3	41	30	15	10.813982	10.814052	10.814122	15	3
45		10.801721	10.801789	10.801857	0	4	55	45	30	10.814193	10.814263	10.814333	0	4
2	0	10.801926	10.801994	10.802062	45	1"	14	17	0	10.814403	10.814474	10.814544	45	1"
15		10.802131	10.802199	10.802268	30	2	27	15	15	10.814614	10.814685	10.814755	30	2
30		10.802336	10.802405	10.802473	15	3	41	30	15	10.814825	10.814896	10.814966	15	3
45		10.802541	10.802610	10.802678	0	4	55	45	30	10.815036	10.815107	10.815177	0	4
3	0	10.802747	10.802815	10.802884	45	1"	14	18	0	10.815247	10.815318	10.815388	45	1"
15		10.802952	10.803021	10.803090	30	2	27	15	15	10.815459	10.815529	10.815599	30	2
30		10.803158	10.803227	10.803295	15	3	41	30	15	10.815670	10.815741	10.815811	15	3
45		10.803364	10.803433	10.803501	0	4	55	45	30	10.815882	10.815952	10.816023	0	4
4	0	10.803570	10.803638	10.803707	45	1"	14	19	0	10.816093	10.816164	10.816234	45	1"
15		10.803776	10.803844	10.803913	30	2	27	15	15	10.816305	10.816375	10.816446	30	2
30		10.803982	10.804050	10.804119	15	3	41	30	15	10.816517	10.816587	10.816658	15	3
45		10.804188	10.804257	10.804325	0	4	55	45	30	10.816728	10.816799	10.816870	0	4
5	0	10.804394	10.804463	10.804532	45	1"	14	20	0	10.816940	10.817011	10.817082	45	1"
15		10.804600	10.804669	10.804738	30	2	28	15	15	10.817153	10.817223	10.817294	30	2
30		10.804807	10.804876	10.804944	15	3	41	30	15	10.817365	10.817435	10.817506	15	3
45		10.805013	10.805082	10.805151	0	4	55	45	30	10.817577	10.817648	10.817719	0	4
6	0	10.805220	10.805289	10.805358	45	1"	14	21	0	10.817789	10.817860	10.817931	45	1"
15		10.805426	10.805495	10.805564	30	2	28	15	15	10.818002	10.818073	10.818143	30	2
30		10.805633	10.805702	10.805771	15	3	41	30	15	10.818214	10.818285	10.818356	15	3
45		10.805840	10.805909	10.805978	0	4	55	45	30	10.818427	10.818498	10.818569	0	4
7	0	10.806047	10.806116	10.806185	45	1"	14	22	0	10.818640	10.818711	10.818782	45	1"
15		10.806254	10.806323	10.806392	30	2	28	15	15	10.818853	10.818924	10.818995	30	2
30		10.806461	10.806530	10.806599	15	3	41	30	15	10.819066	10.819137	10.819208	15	3
45		10.806668	10.806738	10.806807	0	4	55	45	30	10.819279	10.819350	10.819421	0	4
8	0	10.806876	10.806945	10.807014	45	1"	14	23	0	10.819492	10.819563	10.819634	45	1"
15		10.807083	10.807152	10.807222	30	2	28	15	15	10.819705	10.819776	10.819847	30	2
30		10.807291	10.807360	10.807429	15	3	41	30	15	10.819918	10.819989	10.820060	15	3
45		10.807498	10.807568	10.807637	0	4	55	45	30	10.820132	10.820203	10.820274	0	4
9	0	10.807706	10.807775	10.807845	45	1"	14	24	0	10.820345	10.820417	10.820488	45	1"
15		10.807914	10.807983	10.808053	30	2	28	15	15	10.820559	10.820630	10.820702	30	2
30		10.808122	10.808191	10.808260	15	3	42	30	15	10.820773	10.820844	10.820915	15	3
45		10.808330	10.808399	10.808469	0	4	55	45	30	10.820987	10.821058	10.821129	0	4
10	0	10.808538	10.808607	10.808677	45	1"	14	25	0	10.821201	10.821272	10.821343	45	1"
15		10.808746	10.808815	10.808885	30	2	28	15	15	10.821415	10.821486	10.821557	30	2
30		10.808954	10.809024	10.809093	15	3	42	30	15	10.821629	10.821700	10.821772	15	3
45		10.809163	10.809232	10.809302	0	4	56	45	30	10.821843	10.821915	10.821986	0	4
11	0	10.809371	10.809441	10.809510	45	1"	14	26	0	10.822057	10.822129	10.822200	45	1"
15		10.809580	10.809649	10.809719	30	2	28	15	15	10.822272	10.822343	10.822415	30	2
30		10.809788	10.809858	10.809928	15	3	42	30	15	10.822487	10.822558	10.822630	15	3
45		10.809997	10.810067	10.810136	0	4	56	45	30	10.822701	10.822773	10.822844	0	4
12	0	10.810206	10.810276	10.810345	45	1"	14	27	0	10.822916	10.822988	10.823059	45	1"
15		10.810415	10.810485	10.810554	30	2	28	15	15	10.823131	10.823202	10.823274	30	2
30		10.810624	10.810694	10.810763	15	3	42	30	15	10.823346	10.823417	10.823489	15	3
45		10.810833	10.810903	10.810973	0	4	56	45	30	10.823561	10.823633	10.823704	0	4
13	0	10.811042	10.811112	10.811182	45	1"	14	28	0	10.823776	10.823848	10.823920	45	1"
15		10.811252	10.811322	10.811391	30	2	28	15	15	10.823991	10.824063	10.824135	30	2
30		10.811461	10.811531	10.811601	15	3	42	30	15	10.824207	10.824279	10.824350	15	3
45		10.811671	10.811741	10.811810	0	4	56	45	30	10.824422	10.824494	10.824566	0	4
14	0	10.811880	10.811950	10.812020	45	1"	14	29	0	10.824638	10.824710	10.824782	45	1"
15		10.812090	10.812160	10.812230	30	2	28	15	15	10.824853	10.824925	10.824997	30	2
30		10.812300	10.812370	10.812440	15	3	42	30	15	10.825069	10.825141	10.825213	15	3
45		10.812510	10.812580	10.812650	0	4	56	45	30	10.825285	10.825357	10.825429	0	4
		15"	10"	5"						15"	10"	5"		
Co-tangent of 8 degrees, or Tangent of 98 degrees.					Co-tangent of 8 degrees, or Tangent of 98 degrees.					Co-tangent of 8 degrees, or Tangent of 98 degrees.				

LOGARITHMIC TANGENTS.

Tangent of 81 degrees, or Co-tangent of 171 degrees.			Tangent of 81 degrees, or Co-tangent of 171 degrees.			Tangent of 81 degrees, or Co-tangent of 171 degrees.			
5"	10"	Seconds	Minutes	Proport. parts.	Seconds	Minutes	Proport. parts.	Seconds	
501	10.825573	10.825645	45	1" = 14	45	0	10.838653	10.838801	
717	10.825789	10.825861	30	2. 29	15	10.838875	10.838949	10.839023	
933	10.826006	10.826078	15	3. 43	30	10.839098	10.839172	10.839246	
150	10.826222	10.826294	0 29	4. 58	45	10.839320	10.839395	10.839469	
366	10.826438	10.826510	45	1 = 14	46	0	10.839543	10.839617	
583	10.826655	10.826727	30	2. 29	15	10.839766	10.839840	10.839915	
799	10.826871	10.826944	15	3. 43	30	10.839989	10.840063	10.840138	
016	10.827088	10.827160	0 28	4. 58	45	10.840212	10.840287	10.840361	
233	10.827305	10.827377	45	1 = 14	47	0	10.840435	10.840510	
450	10.827522	10.827594	30	2. 29	15	10.840659	10.840733	10.840808	
667	10.827739	10.827811	15	3. 43	30	10.840882	10.840957	10.841031	
884	10.827956	10.828029	0 27	4. 58	45	10.841106	10.841180	10.841255	
101	10.828174	10.828246	45	1 = 14	48	0	10.841329	10.841404	
318	10.828391	10.828463	30	2. 29	15	10.841553	10.841628	10.841702	
536	10.828608	10.828681	15	3. 43	30	10.841777	10.841852	10.841926	
753	10.828826	10.828899	0 26	4. 58	45	10.842001	10.842076	10.842150	
971	10.829044	10.829116	45	1 = 15	49	0	10.842225	10.842300	
489	10.829261	10.829334	30	2. 29	15	10.842449	10.842524	10.842599	
407	10.829479	10.829552	15	3. 44	30	10.842674	10.842748	10.842823	
625	10.829697	10.829770	0 25	4. 58	45	10.842898	10.842973	10.843048	
843	10.829915	10.829988	45	1 = 15	50	0	10.843123	10.843198	
061	10.830134	10.830206	30	2. 29	15	10.843347	10.843422	10.843497	
279	10.830352	10.830425	15	3. 44	30	10.843572	10.843647	10.843722	
498	10.830570	10.830643	0 24	4. 58	45	10.843797	10.843872	10.843947	
716	10.830789	10.830862	45	1 = 15	51	0	10.844022	10.844097	
935	10.831008	10.831081	30	2. 29	15	10.844247	10.844322	10.844397	
153	10.831226	10.831299	15	3. 44	30	10.844472	10.844547	10.844623	
372	10.831445	10.831518	0 23	4. 58	45	10.844698	10.844773	10.844848	
591	10.831664	10.831737	45	1 = 15	52	0	10.844923	10.844998	
810	10.831883	10.831956	30	2. 29	15	10.845149	10.845224	10.845299	
229	10.832102	10.832175	15	3. 44	30	10.845374	10.845450	10.845525	
448	10.832322	10.832395	0 22	4. 58	45	10.845600	10.845675	10.845751	
668	10.832541	10.832614	45	1 = 15	53	0	10.845826	10.845901	
887	10.832760	10.832834	30	2. 29	15	10.846052	10.846127	10.846203	
107	10.832980	10.833053	15	3. 44	30	10.846278	10.846354	10.846429	
226	10.833200	10.833273	0 21	4. 59	45	10.846504	10.846580	10.846655	
446	10.833419	10.833493	45	1 = 15	54	0	10.846731	10.846806	
666	10.833639	10.833713	30	2. 29	15	10.846957	10.847033	10.847108	
886	10.833859	10.833933	15	3. 44	30	10.847184	10.847259	10.847335	
106	10.834079	10.834153	0 20	4. 59	45	10.847410	10.847486	10.847562	
326	10.834300	10.834373	45	1 = 15	55	0	10.847637	10.847713	
547	10.834520	10.834593	30	2. 29	15	10.847864	10.847940	10.848016	
767	10.834740	10.834814	15	3. 44	30	10.848091	10.848167	10.848243	
987	10.834961	10.835035	0 19	4. 59	45	10.848318	10.848394	10.848470	
208	10.835182	10.835255	45	1 = 15	56	0	10.848546	10.848621	
429	10.835402	10.835476	30	2. 29	15	10.848773	10.848849	10.848925	
649	10.835623	10.835697	15	3. 44	30	10.849000	10.849076	10.849152	
869	10.835844	10.835918	0 18	4. 59	45	10.849228	10.849304	10.849380	
109	10.836065	10.836139	45	1 = 15	57	0	10.849456	10.849532	
329	10.836287	10.836360	30	2. 30	15	10.849684	10.849760	10.849836	
549	10.836508	10.836582	15	3. 44	30	10.849912	10.849988	10.850064	
769	10.836729	10.836803	0 17	4. 59	45	10.850140	10.850216	10.850292	
989	10.836951	10.837025	45	1 = 15	58	0	10.850368	10.850444	
209	10.837172	10.837246	30	2. 30	15	10.850596	10.850672	10.850748	
429	10.837394	10.837468	15	3. 44	30	10.850825	10.850901	10.850977	
649	10.837616	10.837690	0 16	4. 59	45	10.851053	10.851129	10.851205	
869	10.837838	10.837912	45	1 = 15	59	0	10.851282	10.851358	
109	10.838060	10.838134	30	2. 30	15	10.851510	10.851587	10.851663	
329	10.838282	10.838356	15	3. 44	30	10.851739	10.851816	10.851892	
549	10.838504	10.838578	0 15	4. 59	45	10.851968	10.852045	10.852121	
10"	5"	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15"	10"	5"
Tangent of 8 degrees, or Co-tangent of 98 degrees.			Tangent of 8 degrees, or Co-tangent of 98 degrees.			Tangent of 8 degrees, or Co-tangent of 98 degrees.			

LOGARITHMIC TANGENTS.

Minutes Seconds		Tangent of 82 degrees, or Co-tangent of 172 degrees.			Seconds Minutes		Proport. parts.		Minutes Seconds		Tangent of 82 degrees, or Co-tangent of 172 degrees.			Seconds Minutes		Proport. parts.						
		0"	5"	10"							0"	5"	10"									
0	0	10.852197	10.852274	10.852350	45	1" = 15	15	0	10.866161	10.866240	10.866318	45	1" = 15	15	0	10.866397	10.866476	10.866555	30	2. 31		
15		10.852427	10.852503	10.852580	30	2. 31	3	46	30	10.866634	10.866713	10.866792	15	3. 46	30	10.866871	10.866949	10.867028	0 44	4. 61		
30		10.852656	10.852732	10.852809	15	3. 46	4	61	45	10.867107	10.867186	10.867265	45	1" = 15	16	10.867344	10.867423	10.867502	30	2. 31		
45		10.852885	10.852962	10.853038	0 59	4. 61	1	15	15	10.867581	10.867660	10.867739	15	3. 46	30	10.867818	10.867898	10.867977	0 43	4. 61		
1	0	10.853115	10.853192	10.853268	45	1" = 15	2	31	17	10.868056	10.868135	10.868214	45	1" = 15	15	10.868293	10.868372	10.868452	30	2. 31		
15		10.853345	10.853421	10.853498	30	2. 31	3	46	15	10.868531	10.868610	10.868689	15	3. 46	30	10.868768	10.868848	10.868927	0 42	4. 61		
30		10.853574	10.853651	10.853728	15	3. 46	4	61	45	10.869006	10.869086	10.869165	45	1" = 15	15	10.869244	10.869323	10.869403	30	2. 31		
45		10.853804	10.853881	10.853958	0 58	4. 61	1	15	15	10.869482	10.869562	10.869641	15	3. 46	30	10.869720	10.869800	10.869879	0 41	4. 62		
2	0	10.854034	10.854111	10.854188	45	1" = 15	2	31	18	10.869959	10.870038	10.870118	45	1" = 15	15	10.870197	10.870277	10.870356	30	2. 31		
15		10.854265	10.854341	10.854418	30	2. 31	3	46	15	10.870436	10.870515	10.870595	15	3. 46	30	10.870674	10.870754	10.870834	0 40	4. 62		
30		10.854495	10.854572	10.854648	15	3. 46	4	61	45	10.870913	10.870993	10.871072	45	1" = 15	15	10.871152	10.871232	10.871311	30	2. 31		
45		10.854725	10.854802	10.854879	0 57	4. 61	1	15	15	10.871391	10.871471	10.871551	15	3. 46	30	10.871630	10.871710	10.871790	0 39	4. 62		
3	0	10.854956	10.855033	10.855110	45	1" = 15	2	31	21	10.871870	10.871949	10.872029	45	1" = 15	15	10.872109	10.872189	10.872269	30	2. 31		
15		10.855186	10.855263	10.855340	30	2. 31	3	46	15	10.872348	10.872429	10.872508	15	3. 46	30	10.872588	10.872668	10.872748	0 38	4. 62		
30		10.855417	10.855494	10.855571	15	3. 46	4	62	45	10.872828	10.872908	10.872988	45	1" = 15	15	10.873068	10.873148	10.873228	30	2. 31		
45		10.855648	10.855725	10.855802	0 56	4. 62	1	15	15	10.873308	10.873388	10.873468	15	3. 46	30	10.873548	10.873629	10.873709	0 37	4. 62		
4	0	10.855879	10.855956	10.856033	45	1" = 15	2	31	22	10.873789	10.873869	10.873949	45	1" = 15	15	10.874029	10.874109	10.874190	30	2. 31		
15		10.856110	10.856187	10.856264	30	2. 31	3	46	15	10.874270	10.874350	10.874430	15	3. 46	30	10.874511	10.874591	10.874671	0 36	4. 62		
30		10.856341	10.856418	10.856495	15	3. 46	4	62	45	10.874751	10.874832	10.874912	45	1" = 15	15	10.874992	10.875073	10.875153	30	2. 31		
45		10.856573	10.856650	10.856727	0 55	4. 62	1	15	15	10.875233	10.875314	10.875394	15	3. 46	30	10.875475	10.875555	10.875636	0 35	4. 62		
5	0	10.856804	10.856881	10.856958	45	1" = 15	2	31	23	10.875716	10.875797	10.875877	45	1" = 15	15	10.875958	10.876038	10.876119	30	2. 31		
15		10.857036	10.857113	10.857190	30	2. 31	3	46	15	10.876199	10.876280	10.876360	15	3. 46	30	10.876441	10.876522	10.876602	0 34	4. 62		
30		10.857267	10.857345	10.857422	15	3. 46	4	62	45	10.876683	10.876764	10.876844	45	1" = 15	15	10.876925	10.877006	10.877086	30	2. 31		
45		10.857499	10.857576	10.857654	0 54	4. 62	1	15	15	10.877167	10.877248	10.877329	15	3. 46	30	10.877409	10.877490	10.877571	0 33	4. 63		
6	0	10.857731	10.857808	10.857886	45	1" = 15	2	31	24	10.877652	10.877733	10.877813	45	1" = 15	15	10.877894	10.877975	10.878056	30	2. 31		
15		10.857963	10.858040	10.858118	30	2. 31	3	46	15	10.878137	10.878218	10.878299	15	3. 46	30	10.878380	10.878461	10.878542	0 32	4. 63		
30		10.858195	10.858273	10.858350	15	3. 46	4	62	45	10.878623	10.878704	10.878785	45	1" = 15	15	10.878866	10.878947	10.879028	30	2. 31		
45		10.858428	10.858505	10.858582	0 53	4. 62	1	15	15	10.879109	10.879190	10.879271	15	3. 46	30	10.879352	10.879433	10.879515	0 31	4. 63		
7	0	10.858660	10.858737	10.858815	45	1" = 15	2	31	25	10.879596	10.879677	10.879758	45	1" = 15	15	10.879839	10.879921	10.880002	30	2. 31		
15		10.858892	10.858970	10.859048	30	2. 31	3	47	15	10.880083	10.880164	10.880245	15	3. 46	30	10.880327	10.880408	10.880490	0 30	4. 63		
30		10.859125	10.859203	10.859280	15	3. 47	4	62	45													
45		10.859358	10.859436	10.859513	0 52	4. 62	1	15														
8	0	10.859591	10.859668	10.859746	45	1" = 15	2	31														
15		10.859824	10.859901	10.859979	30	2. 31	3	47														
30		10.860057	10.860135	10.860212	15	3. 47	4	62														
45		10.860290	10.860368	10.860446	0 51	4. 62	1	15														
9	0	10.860524	10.860601	10.860679	45	1" = 15	2	31														
15		10.860757	10.860835	10.860913	30	2. 31	3	47														
30		10.860991	10.861069	10.861146	15	3. 47	4	62														
45		10.861224	10.861302	10.861380	0 50	4. 62	1	15														
10	0	10.861458	10.861536	10.861614	45	1" = 15	2	31														
15		10.861692	10.861770	10.861848	30	2. 31	3	47														
30		10.861926	10.862004	10.862082	15	3. 47	4	62														
45		10.862160	10.862239	10.862317	0 49	4. 62	1	15														
11	0	10.862395	10.862473	10.862551	45	1" = 15	2	31														
15		10.862629	10.862707	10.862786	30	2. 31	3	47														
30		10.862864	10.862942	10.863020	15	3. 47	4	63														
45		10.863099	10.863177	10.863255	0 48	4. 63	1	15														
12	0	10.863333	10.863412	10.863490	45	1" = 15	2	31														
15		10.863568	10.863647	10.863725	30	2. 31	3	47														
30		10.863803	10.863882	10.863960	15	3. 47	4	63														
45		10.864039	10.864117	10.864195	0 47	4. 63	1	15														
13	0	10.864274	10.864352	10.864431	45	1" = 15	2	31														
15		10.864509	10.864588	10.864666	30	2. 31	3	47														
30		10.864745	10.864823	10.864902	15	3. 47	4	63														
45		10.864981	10.865059	10.865138	0 46	4. 63	1	15														
14	0	10.865216	10.865295	10.865374	45	1" = 15	2	31														
15		10.865452	10.865531	10.865610	30	2. 31	3	47														
30		10.865688	10.865767	10.865846	15	3. 47	4	63														
45		10.865925	10.866003	10.866082	0 45	4. 63	1	15														
		15"	10"	5"	Seconds Minutes	Proport. parts.			Minutes Seconds			Seconds Minutes	Proport. parts.			Minutes Seconds			Seconds Minutes	Proport. parts.		
Co-tangent of 7 degrees, or Tangent of 97 degrees.																						

LOGARITHMIC TANGENTS.

Tangent of 82 degrees, or Co-tangent of 172 degrees.				Tangent of 82 degrees, or Co-tangent of 172 degrees.			
Seconds	0"	5"	10"	Seconds	0"	5"	10"
0	10.880571	10.880652	10.880734	45	10.895458	10.895542	10.895626
15	10.880815	10.880896	10.880978	15	10.895710	10.895794	10.895879
30	10.881059	10.881141	10.881222	30	10.895963	10.896047	10.896131
45	10.881304	10.881385	10.881467	45	10.896215	10.896300	10.896384
0	10.881548	10.881630	10.881711	0	10.896468	10.896553	10.896637
15	10.881793	10.881874	10.881956	15	10.896721	10.896805	10.896890
30	10.882038	10.882119	10.882201	30	10.896974	10.897059	10.897143
45	10.882282	10.882364	10.882446	45	10.897227	10.897312	10.897396
0	10.882528	10.882609	10.882691	0	10.897481	10.897565	10.897650
15	10.882773	10.882854	10.882936	15	10.897734	10.897819	10.897903
30	10.883018	10.883100	10.883182	30	10.897988	10.898072	10.898157
45	10.883263	10.883345	10.883427	45	10.898242	10.898326	10.898411
0	10.883509	10.883591	10.883673	0	10.898496	10.898582	10.898665
15	10.883755	10.883837	10.883919	15	10.898750	10.898834	10.898919
30	10.884001	10.884083	10.884165	30	10.899004	10.899089	10.899173
45	10.884247	10.884329	10.884411	45	10.899258	10.899343	10.899428
0	10.884493	10.884575	10.884657	0	10.899513	10.899598	10.899682
15	10.884739	10.884821	10.884903	15	10.899767	10.899852	10.899937
30	10.884985	10.885068	10.885150	30	10.900022	10.900107	10.900192
45	10.885232	10.885314	10.885396	45	10.900277	10.900362	10.900447
0	10.885479	10.885561	10.885643	0	10.900532	10.900617	10.900702
15	10.885725	10.885808	10.885890	15	10.900787	10.900872	10.900958
30	10.885972	10.886055	10.886137	30	10.901043	10.901128	10.901213
45	10.886219	10.886302	10.886384	45	10.901298	10.901383	10.901469
0	10.886467	10.886549	10.886632	0	10.901554	10.901639	10.901724
15	10.886714	10.886796	10.886879	15	10.901810	10.901895	10.901980
30	10.886961	10.887044	10.887127	30	10.902066	10.902151	10.902236
45	10.887209	10.887292	10.887374	45	10.902322	10.902407	10.902493
0	10.887457	10.887539	10.887622	0	10.902578	10.902663	10.902749
15	10.887705	10.887787	10.887870	15	10.902834	10.902920	10.903005
30	10.887953	10.888035	10.888118	30	10.903091	10.903176	10.903262
45	10.888201	10.888284	10.888366	45	10.903348	10.903433	10.903519
0	10.888449	10.888532	10.888615	0	10.903604	10.903690	10.903776
15	10.888698	10.888780	10.888863	15	10.903861	10.903947	10.904033
30	10.888946	10.889029	10.889112	30	10.904119	10.904204	10.904290
45	10.889195	10.889278	10.889361	45	10.904376	10.904462	10.904547
0	10.889444	10.889527	10.889610	0	10.904633	10.904719	10.904805
15	10.889693	10.889776	10.889859	15	10.904891	10.904977	10.905063
30	10.889942	10.890025	10.890108	30	10.905149	10.905234	10.905320
45	10.890191	10.890274	10.890357	45	10.905406	10.905492	10.905578
0	10.890441	10.890524	10.890607	0	10.905664	10.905750	10.905837
15	10.890690	10.890773	10.890857	15	10.905923	10.906009	10.906095
30	10.890940	10.891023	10.891106	30	10.906181	10.906267	10.906353
45	10.891190	10.891273	10.891356	45	10.906439	10.906526	10.906612
0	10.891440	10.891523	10.891606	0	10.906698	10.906784	10.906870
15	10.891690	10.891773	10.891856	15	10.906957	10.907043	10.907129
30	10.891940	10.892023	10.892107	30	10.907216	10.907302	10.907388
45	10.892190	10.892274	10.892357	45	10.907475	10.907561	10.907647
0	10.892441	10.892524	10.892608	0	10.907734	10.907820	10.907907
15	10.892691	10.892775	10.892859	15	10.907993	10.908080	10.908166
30	10.892942	10.893026	10.893110	30	10.908253	10.908339	10.908426
45	10.893193	10.893277	10.893361	45	10.908512	10.908599	10.908686
0	10.893444	10.893528	10.893612	0	10.908772	10.908859	10.908946
15	10.893695	10.893779	10.893863	15	10.909032	10.909119	10.909206
30	10.893947	10.894031	10.894115	30	10.909292	10.909379	10.909466
45	10.894198	10.894282	10.894366	45	10.909553	10.909639	10.909726
0	10.894450	10.894534	10.894618	0	10.909813	10.909900	10.909987
15	10.894702	10.894786	10.894870	15	10.910074	10.910160	10.910247
30	10.894954	10.895038	10.895122	30	10.910334	10.910421	10.910508
45	10.895206	10.895290	10.895374	45	10.910595	10.910682	10.910769
Seconds	15"	10"	5"	Seconds	15"	10"	5"
Co-tangent of 7 degrees, or Tangent of 97 degrees.				Co-tangent of 7 degrees, or Tangent of 97 degrees.			
Seconds				Seconds			
Minutes				Minutes			
Proport.				Proport.			
parts.				parts.			

LOGARITHMIC TANGENTS.

Minutes		Tangent of 83 degrees, or Co-tangent of 173 degrees.			Minutes		Proport. parts.	Minutes		Tangent of 83 degrees, or Co-tangent of 173 degrees.			Minutes		Proport. parts.
Seconds		0"	5"	10"	Seconds			Seconds		0"	5"	10"	Seconds		
0	0	10.910856	10.910943	10.911030	45	1"	17	15	0	10.926803	10.926893	10.926983	45	1"	18
15	15	10.911117	10.911204	10.911292	30	2.	35	15	15	10.927074	10.927164	10.927254	30	2.	36
30	30	10.911379	10.911466	10.911553	15	3.	52	30	30	10.927345	10.927435	10.927525	15	3.	54
45	45	10.911640	10.911727	10.911815	0	4.	70	45	45	10.927616	10.927706	10.927796	0	4.	72
1	0	10.911902	10.911989	10.912076	45	1"	17	16	0	10.927887	10.927977	10.928068	45	1"	18
15	15	10.912164	10.912251	10.912338	30	2.	35	15	15	10.928158	10.928248	10.928339	30	2.	36
30	30	10.912426	10.912513	10.912600	15	3.	52	30	30	10.928430	10.928520	10.928611	15	3.	54
45	45	10.912688	10.912775	10.912862	0	4.	70	45	45	10.928701	10.928792	10.928882	0	4.	72
2	0	10.912950	10.913037	10.913125	45	1"	18	17	0	10.928973	10.929064	10.929154	45	1"	18
15	15	10.913212	10.913300	10.913387	30	2.	35	15	15	10.929245	10.929336	10.929426	30	2.	36
30	30	10.913475	10.913562	10.913650	15	3.	53	30	30	10.929517	10.929608	10.929699	15	3.	54
45	45	10.913738	10.913825	10.913913	0	4.	70	45	45	10.929789	10.929880	10.929971	0	4.	72
3	0	10.914000	10.914088	10.914176	45	1"	18	18	0	10.930062	10.930153	10.930244	45	1"	18
15	15	10.914263	10.914351	10.914439	30	2.	35	15	15	10.930335	10.930425	10.930516	30	2.	36
30	30	10.914527	10.914614	10.914702	15	3.	53	30	30	10.930607	10.930698	10.930789	15	3.	54
45	45	10.914790	10.914878	10.914966	0	4.	70	45	45	10.930880	10.930971	10.931062	0	4.	72
4	0	10.915053	10.915141	10.915229	45	1"	18	19	0	10.931153	10.931245	10.931336	45	1"	18
15	15	10.915317	10.915405	10.915493	30	2.	35	15	15	10.931427	10.931518	10.931609	30	2.	36
30	30	10.915581	10.915669	10.915757	15	3.	53	30	30	10.931700	10.931791	10.931883	15	3.	54
45	45	10.915845	10.915933	10.916021	0	4.	70	45	45	10.931974	10.932065	10.932156	0	4.	72
5	0	10.916109	10.916197	10.916285	45	1"	18	20	0	10.932248	10.932339	10.932430	45	1"	18
15	15	10.916373	10.916461	10.916549	30	2.	35	15	15	10.932522	10.932613	10.932704	30	2.	36
30	30	10.916638	10.916726	10.916814	15	3.	53	30	30	10.932796	10.932887	10.932979	15	3.	54
45	45	10.916902	10.916990	10.917079	0	4.	71	45	45	10.933070	10.933162	10.933253	0	4.	72
6	0	10.917167	10.917255	10.917343	45	1"	18	21	0	10.933345	10.933436	10.933528	45	1"	18
15	15	10.917432	10.917520	10.917608	30	2.	35	15	15	10.933619	10.933711	10.933803	30	2.	36
30	30	10.917697	10.917785	10.917874	15	3.	53	30	30	10.933894	10.933986	10.934077	15	3.	54
45	45	10.917962	10.918050	10.918139	0	4.	71	45	45	10.934169	10.934261	10.934353	0	4.	72
7	0	10.918227	10.918316	10.918404	45	1"	18	22	0	10.934444	10.934536	10.934628	45	1"	18
15	15	10.918493	10.918581	10.918670	30	2.	35	15	15	10.934720	10.934811	10.934903	30	2.	36
30	30	10.918759	10.918847	10.918936	15	3.	53	30	30	10.934995	10.935087	10.935179	15	3.	54
45	45	10.919024	10.919113	10.919202	0	4.	71	45	45	10.935271	10.935363	10.935455	0	4.	72
8	0	10.919290	10.919379	10.919468	45	1"	18	23	0	10.935547	10.935639	10.935731	45	1"	18
15	15	10.919557	10.919645	10.919734	30	2.	36	15	15	10.935823	10.935915	10.936007	30	2.	36
30	30	10.919823	10.919912	10.920000	15	3.	53	30	30	10.936099	10.936191	10.936283	15	3.	54
45	45	10.920089	10.920178	10.920267	0	4.	71	45	45	10.936375	10.936467	10.936559	0	4.	72
9	0	10.920359	10.920445	10.920534	45	1"	18	24	0	10.936652	10.936744	10.936836	45	1"	18
15	15	10.920623	10.920712	10.920801	30	2.	36	15	15	10.936928	10.937021	10.937113	30	2.	36
30	30	10.920890	10.920979	10.921068	15	3.	53	30	30	10.937205	10.937298	10.937390	15	3.	54
45	45	10.921157	10.921246	10.921335	0	4.	71	45	45	10.937482	10.937575	10.937667	0	4.	72
10	0	10.921424	10.921513	10.921602	45	1"	18	25	0	10.937760	10.937852	10.937945	45	1"	18
15	15	10.921691	10.921781	10.921870	30	2.	36	15	15	10.938037	10.938130	10.938222	30	2.	36
30	30	10.921959	10.922048	10.922137	15	3.	54	30	30	10.938315	10.938407	10.938500	15	3.	54
45	45	10.922227	10.922316	10.922405	0	4.	71	45	45	10.938592	10.938685	10.938778	0	4.	72
11	0	10.922495	10.922584	10.922673	45	1"	18	26	0	10.938870	10.938963	10.939056	45	1"	18
15	15	10.922763	10.922852	10.922941	30	2.	36	15	15	10.939148	10.939241	10.939334	30	2.	36
30	30	10.923031	10.923120	10.923210	15	3.	54	30	30	10.939427	10.939519	10.939612	15	3.	54
45	45	10.923299	10.923389	10.923478	0	4.	72	45	45	10.939705	10.939798	10.939891	0	4.	72
12	0	10.923568	10.923657	10.923747	45	1"	18	27	0	10.939984	10.940076	10.940169	45	1"	18
15	15	10.923837	10.923926	10.924016	30	2.	36	15	15	10.940262	10.940355	10.940448	30	2.	36
30	30	10.924105	10.924195	10.924285	15	3.	54	30	30	10.940541	10.940634	10.940727	15	3.	54
45	45	10.924374	10.924464	10.924554	0	4.	72	45	45	10.940820	10.940914	10.941007	0	4.	72
13	0	10.924644	10.924733	10.924823	45	1"	18	28	0	10.941100	10.941193	10.941286	45	1"	18
15	15	10.924913	10.925003	10.925093	30	2.	36	15	15	10.941379	10.941472	10.941566	30	2.	36
30	30	10.925183	10.925272	10.925362	15	3.	54	30	30	10.941659	10.941752	10.941845	15	3.	54
45	45	10.925452	10.925542	10.925632	0	4.	72	45	45	10.941939	10.942032	10.942125	0	4.	72
14	0	10.925722	10.925812	10.925902	45	1"	18	29	0	10.942219	10.942312	10.942405	45	1"	18
15	15	10.925992	10.926082	10.926172	30	2.	36	15	15	10.942499	10.942592	10.942686	30	2.	36
30	30	10.926262	10.926352	10.926442	15	3.	54	30	30	10.942779	10.942873	10.942966	15	3.	54
45	45	10.926533	10.926623	10.926713	0	4.	72	45	45	10.943060	10.943153	10.943247	0	4.	72
Minutes	Seconds	15"	10"	5"	Minutes	Seconds	Proport. parts.	Minutes	Seconds	15"	10"	5"	Minutes	Seconds	Proport. parts.
		Co-tangent of 6 degrees, or Tangent of 96 degrees.								Co-tangent of 6 degrees, or Tangent of 96 degrees.					

LOGARITHMIC TANGENTS.

Tangent of 83 degrees, or Co-tangent of 173 degrees.			Seconds	Minutes	Proport. parts.	Tangent of 83 degrees, or Co-tangent of 173 degrees.			Seconds	Minutes	Proport. parts.	
1'	5'	10'				0'	5'	10'				
43.340	10.943434	10.943528	45		1" = 19	45	0	10.960515	10.960612	10.960710	45	1" = 19
43.621	10.943715	10.943809	30		2. 37	15		10.960807	10.960904	10.961002	30	2. 39
43.902	10.943996	10.944090	15		3. 56	30		10.961099	10.961197	10.961294	15	3. 58
44.184	10.944277	10.944371	0	29	4. 75	45		10.961392	10.961489	10.961587	0	4. 78
44.465	10.944559	10.944653	45		1 = 19	46	0	10.961684	10.961782	10.961879	45	1 = 20
44.747	10.944841	10.944935	30		2. 38	15		10.961977	10.962074	10.962172	30	2. 39
45.028	10.945122	10.945216	15		3. 56	30		10.962270	10.962367	10.962465	15	3. 59
45.310	10.945404	10.945498	0	28	4. 75	45		10.962563	10.962661	10.962758	0	4. 78
45.593	10.945687	10.945781	45		1 = 19	47	0	10.962856	10.962954	10.963052	45	1 = 20
45.875	10.945969	10.946063	30		2. 38	15		10.963150	10.963247	10.963345	30	2. 39
46.157	10.946252	10.946346	15		3. 57	30		10.963443	10.963541	10.963639	15	3. 59
46.440	10.946534	10.946629	0	27	4. 75	45		10.963737	10.963835	10.963933	0	4. 78
46.723	10.946817	10.946912	45		1 = 19	48	0	10.964031	10.964129	10.964227	45	1 = 20
47.006	10.947100	10.947195	30		2. 38	15		10.964325	10.964424	10.964522	30	2. 39
47.289	10.947384	10.947478	15		3. 57	30		10.964620	10.964718	10.964816	15	3. 59
47.572	10.947667	10.947761	0	26	4. 76	45		10.964914	10.965013	10.965111	0	4. 79
47.856	10.947951	10.948045	45		1 = 19	49	0	10.965209	10.965308	10.965406	45	1 = 20
48.140	10.948234	10.948329	30		2. 38	15		10.965504	10.965603	10.965701	30	2. 39
48.424	10.948518	10.948613	15		3. 57	30		10.965800	10.965898	10.965996	15	3. 59
48.708	10.948803	10.948897	0	25	4. 76	45		10.966095	10.966194	10.966292	0	4. 79
48.992	10.949087	10.949182	45		1 = 19	50	0	10.966391	10.966489	10.966588	45	1 = 20
49.277	10.949371	10.949466	30		2. 38	15		10.966686	10.966785	10.966884	30	2. 39
49.561	10.949656	10.949751	15		3. 57	30		10.966982	10.967081	10.967180	15	3. 59
49.846	10.949941	10.950036	0	24	4. 76	45		10.967279	10.967377	10.967476	0	4. 79
50.131	10.950226	10.950321	45		1 = 19	51	0	10.967575	10.967674	10.967773	45	1 = 20
50.416	10.950511	10.950607	30		2. 38	15		10.967872	10.967971	10.968070	30	2. 40
50.702	10.950797	10.950892	15		3. 57	30		10.968168	10.968267	10.968366	15	3. 59
50.987	10.951082	10.951178	0	23	4. 76	45		10.968465	10.968565	10.968664	0	4. 79
51.273	10.951368	10.951464	45		1 = 19	52	0	10.968763	10.968862	10.968961	45	1 = 20
51.559	10.951654	10.951750	30		2. 38	15		10.969060	10.969159	10.969258	30	2. 40
51.845	10.951940	10.952036	15		3. 57	30		10.969358	10.969457	10.969556	15	3. 60
52.131	10.952227	10.952322	0	22	4. 76	45		10.969656	10.969755	10.969854	0	4. 79
52.418	10.952513	10.952609	45		1 = 19	53	0	10.969954	10.970053	10.970152	45	1 = 20
52.704	10.952800	10.952896	30		2. 38	15		10.970252	10.970351	10.970450	30	2. 40
52.991	10.953087	10.953183	15		3. 57	30		10.970550	10.970650	10.970749	15	3. 60
53.278	10.953374	10.953470	0	21	4. 77	45		10.970849	10.970948	10.971048	0	4. 80
53.566	10.953661	10.953757	45		1 = 19	54	0	10.971148	10.971247	10.971347	45	1 = 20
53.853	10.953949	10.954045	30		2. 38	15		10.971447	10.971546	10.971646	30	2. 40
54.141	10.954237	10.954332	15		3. 58	30		10.971746	10.971845	10.971945	15	3. 60
54.428	10.954524	10.954620	0	20	4. 77	45		10.972045	10.972145	10.972245	0	4. 80
54.716	10.954812	10.954908	45		1 = 19	55	0	10.972345	10.972445	10.972545	45	1 = 20
55.005	10.955101	10.955197	30		2. 38	15		10.972645	10.972745	10.972845	30	2. 40
55.293	10.955389	10.955485	15		3. 58	30		10.972945	10.973045	10.973145	15	3. 60
55.581	10.955678	10.955774	0	19	4. 77	45		10.973245	10.973345	10.973445	0	4. 80
55.870	10.955966	10.956063	45		1 = 19	56	0	10.973545	10.973645	10.973746	45	1 = 20
56.159	10.956255	10.956352	30		2. 39	15		10.973846	10.973946	10.974046	30	2. 40
56.448	10.956544	10.956641	15		3. 58	30		10.974147	10.974247	10.974347	15	3. 60
56.737	10.956834	10.956930	0	18	4. 77	45		10.974448	10.974548	10.974648	0	4. 80
57.027	10.957123	10.957220	45		1 = 19	57	0	10.974749	10.974849	10.974950	45	1 = 20
57.316	10.957413	10.957510	30		2. 39	15		10.975050	10.975151	10.975251	30	2. 40
57.606	10.957703	10.957800	15		3. 58	30		10.975352	10.975453	10.975553	15	3. 60
57.896	10.957993	10.958090	0	17	4. 77	45		10.975654	10.975754	10.975855	0	4. 80
58.187	10.958283	10.958380	45		1 = 19	58	0	10.975956	10.976057	10.976157	45	1 = 20
58.477	10.958574	10.958671	30		2. 39	15		10.976258	10.976359	10.976460	30	2. 40
58.768	10.958865	10.958961	15		3. 58	30		10.976561	10.976661	10.976762	15	3. 60
59.058	10.959155	10.959252	0	16	4. 77	45		10.976863	10.976964	10.977065	0	4. 81
59.349	10.959446	10.959543	45		1 = 19	59	0	10.977166	10.977267	10.977368	45	1 = 20
59.641	10.959738	10.959835	30		2. 39	15		10.977469	10.977570	10.977671	30	2. 40
59.932	10.960029	10.960126	15		3. 58	30		10.977773	10.977874	10.977975	15	3. 60
60.223	10.960321	10.960418	0	15	4. 78	45		10.978076	10.978177	10.978278	0	4. 81
5'	10'	5'	Tangent of 6 degrees, or Tangent of 96 degrees.			Co-tangent of 6 degrees, or Tangent of 96 degrees.			Tangent of 6 degrees, or Tangent of 96 degrees.			
Seconds	Minutes	Proport. parts.	Seconds	Minutes	Proport. parts.	Seconds	Minutes	Proport. parts.	Seconds	Minutes	Proport. parts.	

LOGARITHMIC TANGENTS.

Minutes Seconds		Tangent of 84 degrees, or Co-tangent of 174 degrees.			Seconds Minutes		Proport. parts.	Minutes Seconds		Tangent of 84 degrees, or Co-tangent of 174 degrees.			Seconds Minutes		Proport. parts.
		0'	5'	10'						0'	5'	10'			
0	0	10.978380	10.978481	10.978582	45	1" = 20		15	0	10.996993	10.997099	10.997205	45	1" = 20	
15	0	10.978684	10.978785	10.978886	30	2. 41		15	0	10.997310	10.997416	10.997522	30	2. 41	
30	0	10.978988	10.979089	10.979191	15	3. 61		30	0	10.997627	10.997733	10.997839	15	3. 61	
45	0	10.979292	10.979394	10.979495	0 59	4. 81		45	0	10.997945	10.998051	10.998157	0 44	4. 81	
1	0	10.979597	10.979698	10.979800	45	1" = 20		16	0	10.998262	10.998368	10.998474	45	1" = 20	
15	0	10.979901	10.980003	10.980105	30	2. 41		15	0	10.998580	10.998686	10.998792	30	2. 41	
30	0	10.980206	10.980308	10.980410	15	3. 61		30	0	10.998908	10.999004	10.999111	15	3. 61	
45	0	10.980512	10.980613	10.980715	0 58	4. 81		45	0	10.999217	10.999323	10.999429	0 43	4. 81	
2	0	10.980817	10.980919	10.981021	45	1" = 20		17	0	10.999535	10.999641	10.999748	45	1" = 20	
15	0	10.981122	10.981224	10.981326	30	2. 41		15	0	10.999854	10.999960	11.000067	30	2. 41	
30	0	10.981428	10.981530	10.981632	15	3. 61		30	0	11.000173	11.000279	11.000386	15	3. 61	
45	0	10.981734	10.981836	10.981938	0 57	4. 82		45	0	11.000492	11.000599	11.000705	0 42	4. 82	
3	0	10.982041	10.982143	10.982245	45	1" = 20		18	0	11.000812	11.000918	11.001025	45	1" = 20	
15	0	10.982347	10.982449	10.982551	30	2. 41		15	0	11.001131	11.001238	11.001345	30	2. 41	
30	0	10.982654	10.982756	10.982858	15	3. 61		30	0	11.001451	11.001558	11.001665	15	3. 61	
45	0	10.982960	10.983063	10.983165	0 56	4. 82		45	0	11.001771	11.001878	11.001985	0 41	4. 82	
4	0	10.983267	10.983370	10.983472	45	1" = 21		19	0	11.002092	11.002199	11.002306	45	1" = 21	
15	0	10.983575	10.983677	10.983780	30	2. 41		15	0	11.002412	11.002519	11.002626	30	2. 41	
30	0	10.983882	10.983985	10.984087	15	3. 62		30	0	11.002733	11.002840	11.002947	15	3. 62	
45	0	10.984190	10.984293	10.984395	0 55	4. 82		45	0	11.003054	11.003161	11.003269	0 40	4. 82	
5	0	10.984498	10.984601	10.984703	45	1" = 21		20	0	11.003376	11.003483	11.003590	45	1" = 21	
15	0	10.984806	10.984909	10.985012	30	2. 41		15	0	11.003697	11.003804	11.003912	30	2. 41	
30	0	10.985114	10.985217	10.985320	15	3. 62		30	0	11.004019	11.004126	11.004234	15	3. 62	
45	0	10.985423	10.985526	10.985629	0 54	4. 82		45	0	11.004341	11.004448	11.004556	0 39	4. 82	
6	0	10.985732	10.985835	10.985938	45	1" = 21		21	0	11.004663	11.004771	11.004878	45	1" = 21	
15	0	10.986041	10.986144	10.986247	30	2. 41		15	0	11.004986	11.005093	11.005201	30	2. 41	
30	0	10.986350	10.986453	10.986556	15	3. 62		30	0	11.005308	11.005416	11.005524	15	3. 62	
45	0	10.986659	10.986763	10.986866	0 53	4. 82		45	0	11.005631	11.005739	11.005847	0 38	4. 82	
7	0	10.986969	10.987072	10.987176	45	1" = 21		22	0	11.005955	11.006062	11.006170	45	1" = 21	
15	0	10.987279	10.987382	10.987486	30	2. 41		15	0	11.006278	11.006386	11.006494	30	2. 41	
30	0	10.987589	10.987692	10.987796	15	3. 62		30	0	11.006602	11.006710	11.006818	15	3. 62	
45	0	10.987899	10.988003	10.988106	0 52	4. 83		45	0	11.006926	11.007034	11.007142	0 37	4. 83	
8	0	10.988210	10.988313	10.988417	45	1" = 21		23	0	11.007250	11.007358	11.007466	45	1" = 21	
15	0	10.988520	10.988624	10.988728	30	2. 41		15	0	11.007574	11.007682	11.007790	30	2. 41	
30	0	10.988831	10.988935	10.989039	15	3. 62		30	0	11.007899	11.008007	11.008115	15	3. 62	
45	0	10.989143	10.989246	10.989350	0 51	4. 83		45	0	11.008223	11.008332	11.008440	0 36	4. 83	
9	0	10.989454	10.989558	10.989662	45	1" = 21		24	0	11.008549	11.008657	11.008765	45	1" = 21	
15	0	10.989765	10.989869	10.989973	30	2. 42		15	0	11.008874	11.008982	11.009091	30	2. 42	
30	0	10.990077	10.990181	10.990285	15	3. 62		30	0	11.009199	11.009308	11.009417	15	3. 62	
45	0	10.990389	10.990493	10.990597	0 50	4. 83		45	0	11.009525	11.009634	11.009743	0 35	4. 83	
10	0	10.990702	10.990806	10.990910	45	1" = 21		25	0	11.009851	11.009960	11.010069	45	1" = 21	
15	0	10.991014	10.991118	10.991223	30	2. 42		15	0	11.010178	11.010286	11.010395	30	2. 42	
30	0	10.991327	10.991431	10.991535	15	3. 63		30	0	11.010504	11.010613	11.010722	15	3. 63	
45	0	10.991640	10.991744	10.991848	0 49	4. 83		45	0	11.010831	11.010940	11.011049	0 34	4. 83	
11	0	10.991953	10.992057	10.992162	45	1" = 21		26	0	11.011158	11.011267	11.011376	45	1" = 21	
15	0	10.992266	10.992371	10.992475	30	2. 42		15	0	11.011485	11.011594	11.011703	30	2. 42	
30	0	10.992580	10.992684	10.992789	15	3. 63		30	0	11.011813	11.011922	11.012031	15	3. 63	
45	0	10.992894	10.992998	10.993103	0 48	4. 84		45	0	11.012140	11.012250	11.012359	0 33	4. 84	
12	0	10.993208	10.993312	10.993417	45	1" = 21		27	0	11.012468	11.012578	11.012687	45	1" = 21	
15	0	10.993522	10.993627	10.993731	30	2. 42		15	0	11.012797	11.012906	11.013015	30	2. 42	
30	0	10.993836	10.993941	10.994046	15	3. 63		30	0	11.013125	11.013235	11.013344	15	3. 63	
45	0	10.994151	10.994256	10.994361	0 47	4. 84		45	0	11.013454	11.013563	11.013673	0 32	4. 84	
13	0	10.994466	10.994571	10.994676	45	1" = 21		28	0	11.013783	11.013892	11.014002	45	1" = 21	
15	0	10.994781	10.994886	10.994991	30	2. 42		15	0	11.014112	11.014222	11.014331	30	2. 42	
30	0	10.995096	10.995202	10.995307	15	3. 63		30	0	11.014441	11.014551	11.014661	15	3. 63	
45	0	10.995412	10.995517	10.995623	0 46	4. 84		45	0	11.014771	11.014881	11.014991	0 31	4. 84	
14	0	10.995728	10.995833	10.995938	45	1" = 21		29	0	11.015101	11.015211	11.015321	45	1" = 21	
15	0	10.996044	10.996149	10.996255	30	2. 42		15	0	11.015431	11.015541	11.015651	30	2. 42	
30	0	10.996360	10.996466	10.996571	15	3. 63		30	0	11.015761	11.015872	11.015982	15	3. 63	
45	0	10.996677	10.996782	10.996888	0 45	4. 84		45	0	11.016092	11.016202	11.016313	0 30	4. 84	
		15'	10'	5'						15'	10'	5'			
Minutes Seconds		Co-tangent of 5 degrees, or Tangent of 95 degrees.			Seconds Minutes		Proport. parts.	Minutes Seconds		Co-tangent of 5 degrees, or Tangent of 95 degrees.			Seconds Minutes		Proport. parts.

LOGARITHMIC TANGENTS.

Tangent of 84 degrees, or Co-tangent of 174 degrees.				Tangent of 84 degrees, or Co-tangent of 174 degrees.			
5"	10"	Seconds	Minutes	0"	5"	10"	Seconds
3	11.016533	11.016644	45	1	11.036745	11.036861	11.036977
4	11.016865	11.016975	30	2	11.037092	11.037208	11.037324
5	11.017196	11.017307	15	3	11.037439	11.037555	11.037671
6	11.017528	11.017639	0	4	11.037787	11.037902	11.038018
7	11.017860	11.017971	45	5	11.038134	11.038250	11.038366
8	11.018192	11.018303	30	6	11.038482	11.038598	11.038714
9	11.018525	11.018636	15	7	11.038830	11.038946	11.039062
10	11.018857	11.018968	0	8	11.039178	11.039295	11.039411
11	11.019190	11.019301	45	9	11.039527	11.039643	11.039760
12	11.019524	11.019635	30	10	11.039876	11.039992	11.040109
13	11.019857	11.019968	15	11	11.040225	11.040342	11.040458
14	11.020191	11.020302	0	12	11.040575	11.040691	11.040808
15	11.020525	11.020636	45	13	11.040925	11.041041	11.041158
16	11.020859	11.020971	30	14	11.041275	11.041391	11.041508
17	11.021194	11.021305	15	15	11.041625	11.041742	11.041859
18	11.021528	11.021640	0	16	11.041976	11.042092	11.042209
19	11.021863	11.021975	45	17	11.042326	11.042443	11.042560
20	11.022199	11.022310	30	18	11.042678	11.042795	11.042912
21	11.022534	11.022646	15	19	11.043029	11.043146	11.043263
22	11.022870	11.022982	0	20	11.043381	11.043498	11.043615
23	11.023206	11.023318	45	21	11.043733	11.043850	11.043968
24	11.023542	11.023654	30	22	11.044085	11.044202	11.044320
25	11.023879	11.023991	15	23	11.044438	11.044555	11.044673
26	11.024216	11.024328	0	24	11.044790	11.044908	11.045026
27	11.024553	11.024665	45	25	11.045144	11.045261	11.045379
28	11.024890	11.025002	30	26	11.045497	11.045615	11.045733
29	11.025228	11.025340	15	27	11.045851	11.045969	11.046087
30	11.025565	11.025678	0	28	11.046205	11.046323	11.046441
31	11.025903	11.026016	45	29	11.046559	11.046677	11.046795
32	11.026242	11.026355	30	30	11.046913	11.047032	11.047150
33	11.026580	11.026693	15	31	11.047268	11.047387	11.047505
34	11.026919	11.027032	0	32	11.047623	11.047742	11.047860
35	11.027258	11.027371	45	33	11.047979	11.048097	11.048216
36	11.027598	11.027711	30	34	11.048335	11.048453	11.048572
37	11.027937	11.028050	15	35	11.048690	11.048809	11.048928
38	11.028277	11.028391	0	36	11.049047	11.049166	11.049284
39	11.028617	11.028731	45	37	11.049403	11.049522	11.049641
40	11.028958	11.029071	30	38	11.049760	11.049879	11.049998
41	11.029299	11.029412	15	39	11.050117	11.050236	11.050355
42	11.029640	11.029753	0	40	11.050475	11.050594	11.050713
43	11.029981	11.030095	45	41	11.050832	11.050952	11.051071
44	11.030322	11.030436	30	42	11.051190	11.051310	11.051429
45	11.030664	11.030778	15	43	11.051549	11.051668	11.051788
46	11.031006	11.031120	0	44	11.051907	11.052027	11.052146
47	11.031348	11.031462	45	45	11.052266	11.052386	11.052506
48	11.031691	11.031805	30	46	11.052625	11.052745	11.052865
49	11.032034	11.032148	15	47	11.052985	11.053105	11.053225
50	11.032377	11.032491	0	48	11.053345	11.053464	11.053585
51	11.032720	11.032835	45	49	11.053705	11.053825	11.053945
52	11.033064	11.033178	30	50	11.054065	11.054185	11.054305
53	11.033407	11.033522	15	51	11.054426	11.054546	11.054666
54	11.033752	11.033866	0	52	11.054786	11.054907	11.055027
55	11.034096	11.034211	45	53	11.055148	11.055268	11.055389
56	11.034441	11.034556	30	54	11.055509	11.055630	11.055750
57	11.034786	11.034901	15	55	11.055871	11.055992	11.056112
58	11.035131	11.035246	0	56	11.056233	11.056354	11.056475
59	11.035476	11.035592	45	57	11.056596	11.056716	11.056837
60	11.035822	11.035937	30	58	11.056958	11.057079	11.057200
61	11.036168	11.036284	15	59	11.057321	11.057442	11.057563
62	11.036514	11.036630	0	60	11.057685	11.057806	11.057927
63	11.036860	11.036976	45	61	11.058049	11.058170	11.058291
64	11.037206	11.037322	30	62	11.058413	11.058534	11.058655
65	11.037552	11.037668	15	63	11.058777	11.058898	11.059019
66	11.037898	11.038014	0	64	11.059141	11.059262	11.059383
67	11.038244	11.038360	45	65	11.059505	11.059626	11.059747
68	11.038590	11.038706	30	66	11.059869	11.059990	11.060111
69	11.038936	11.039052	15	67	11.060233	11.060354	11.060475
70	11.039282	11.039398	0	68	11.060597	11.060718	11.060839
71	11.039628	11.039744	45	69	11.061000	11.061121	11.061242
72	11.039974	11.040090	30	70	11.061364	11.061485	11.061606
73	11.040320	11.040436	15	71	11.061728	11.061849	11.061970
74	11.040666	11.040782	0	72	11.062092	11.062213	11.062334
75	11.041012	11.041128	45	73	11.062456	11.062577	11.062698
76	11.041358	11.041474	30	74	11.062820	11.062941	11.063062
77	11.041704	11.041820	15	75	11.063184	11.063305	11.063426
78	11.042050	11.042166	0	76	11.063548	11.063669	11.063790
79	11.042396	11.042512	45	77	11.063912	11.064033	11.064154
80	11.042742	11.042858	30	78	11.064276	11.064397	11.064518
81	11.043088	11.043204	15	79	11.064640	11.064761	11.064882
82	11.043434	11.043550	0	80	11.065004	11.065125	11.065246
83	11.043780	11.043896	45	81	11.065368	11.065489	11.065610
84	11.044126	11.044242	30	82	11.065732	11.065853	11.065974
85	11.044472	11.044588	15	83	11.066096	11.066217	11.066338
86	11.044818	11.044934	0	84	11.066460	11.066581	11.066702
87	11.045164	11.045280	45	85	11.066824	11.066945	11.067066
88	11.045510	11.045626	30	86	11.067188	11.067309	11.067430
89	11.045856	11.045972	15	87	11.067552	11.067673	11.067794
90	11.046202	11.046318	0	88	11.067916	11.068037	11.068158
91	11.046548	11.046664	45	89	11.068280	11.068401	11.068522
92	11.046894	11.047010	30	90	11.068644	11.068765	11.068886
93	11.047240	11.047356	15	91	11.069008	11.069129	11.069250
94	11.047586	11.047702	0	92	11.069372	11.069493	11.069614
95	11.047932	11.048048	45	93	11.069736	11.069857	11.069978
96	11.048278	11.048394	30	94	11.070100	11.070221	11.070342
97	11.048624	11.048740	15	95	11.070464	11.070585	11.070706
98	11.048970	11.049086	0	96	11.070828	11.070949	11.071070
99	11.049316	11.049432	45	97	11.071192	11.071313	11.071434
100	11.049662	11.049778	30	98	11.071556	11.071677	11.071798
101	11.049998	11.050114	15	99	11.071920	11.072041	11.072162
102	11.050334	11.050450	0	100	11.072284	11.072405	11.072526
103	11.050670	11.050786	45	101	11.072648	11.072769	11.072890
104	11.051006	11.051122	30	102	11.073012	11.073133	11.073254
105	11.051342	11.051458	15	103	11.073376	11.073497	11.073618
106	11.051678	11.051794	0	104	11.073740	11.073861	11.073982
107	11.052014	11.052130	45	105	11.074104	11.074225	11.074346
108	11.052350	11.052466	30	106	11.074468	11.074589	11.074710
109	11.052686	11.052802	15	107	11.074832	11.074953	11.075074
110	11.053022	11.053138	0	108	11.075196	11.075317	11.075438
111	11.053358	11.053474	45	109	11.075560	11.075681	11.075802
112	11.053694	11.053810	30	110	11.075924	11.076045	11.076166
113	11.054030	11.054146	15	111	11.076288	11.076409	11.076530
114	11.054366	11.054482	0	112	11.076652	11.076773	11.076894
115	11.054702	11.054818	45	113	11.077016	11.077137	11.077258
116	11.055038	11.055154	30	114	11.077380	11.077501	11.077622
117	11.055374	11.055490	15	115	11.077744	11.077865	11.077986
118	11.055710	11.055826	0	116	11.078108	11.078229	11.078350
119	11.056046	11.056162	45	117	11.078472	11.078593	11.078714
120	11.056382	11.056498	30	118	11.078836	11.078957	11.079078
121	11.056718	11.056834	15	119	11.079200	11.079321	11.079442
122	11.057054	11.057170	0	120	11.079564	11.079685	11.079806
123	11.057390	11.057506	45	121	11.079928	11.080049	11.080170
124	11.057726	11.057842	30	122	11.080292	11.080413	11.080534
125	11.058062	11.058178	15	123	11.080656	11.080777	11.080898
126	11.058398	11.058514	0	124	11.081020	11.081141	11.081262
127	11.058734	11.0588					

LOGARITHMIC TANGENTS.

Minutes		Tangent of 85 degrees, or Co-tangent of 175 degrees.			Minutes		Tangent of 85 degrees, or Co-tangent of 175 degrees.		
		0'	5'	10'			0'	5'	10'
0	0	11.058048	11.058169	11.058291	45	1" = 24	15	0	11.080432
15	0	11.058412	11.058533	11.058655	30	2. 49	15	15	11.080815
30	0	11.058776	11.058898	11.059019	15	3. 73	30	15	11.081199
45	0	11.059141	11.059262	11.059384	0 59	4. 97	45	15	11.081582
1	0	11.059506	11.059627	11.059749	45	1 = 24	16	0	11.081966
15	0	11.059871	11.059992	11.060114	30	2. 49	15	15	11.082350
30	0	11.060236	11.060358	11.060480	15	3. 73	30	15	11.082735
45	0	11.060602	11.060724	11.060846	0 58	4. 97	45	15	11.083120
2	0	11.060968	11.061090	11.061212	45	1 = 24	17	0	11.083505
15	0	11.061334	11.061456	11.061579	30	2. 49	15	15	11.083890
30	0	11.061701	11.061823	11.061945	15	3. 73	30	15	11.084276
45	0	11.062068	11.062190	11.062313	0 57	4. 98	45	15	11.084662
3	0	11.062435	11.062557	11.062680	45	1 = 25	18	0	11.085049
15	0	11.062803	11.062925	11.063048	30	2. 49	15	15	11.085436
30	0	11.063170	11.063293	11.063416	15	3. 74	30	15	11.085823
45	0	11.063539	11.063661	11.063784	0 56	4. 98	45	15	11.086211
4	0	11.063907	11.064030	11.064153	45	1 = 25	19	0	11.086599
15	0	11.064276	11.064399	11.064522	30	2. 49	15	15	11.086987
30	0	11.064645	11.064768	11.064891	15	3. 74	30	15	11.087376
45	0	11.065014	11.065137	11.065261	0 55	4. 98	45	15	11.087765
5	0	11.065384	11.065507	11.065631	45	1 = 25	20	0	11.088154
15	0	11.065754	11.065877	11.066001	30	2. 49	15	15	11.088544
30	0	11.066124	11.066248	11.066371	15	3. 74	30	15	11.088934
45	0	11.066495	11.066619	11.066742	0 54	4. 99	45	15	11.089324
6	0	11.066866	11.066990	11.067113	45	1 = 25	21	0	11.089715
15	0	11.067237	11.067361	11.067485	30	2. 50	15	15	11.090106
30	0	11.067609	11.067733	11.067857	15	3. 74	30	15	11.090497
45	0	11.067981	11.068105	11.068229	0 53	4. 99	45	15	11.090889
7	0	11.068353	11.068477	11.068601	45	1 = 25	22	0	11.091281
15	0	11.068725	11.068850	11.068974	30	2. 50	15	15	11.091673
30	0	11.069098	11.069223	11.069347	15	3. 75	30	15	11.092066
45	0	11.069471	11.069596	11.069720	0 52	4. 99	45	15	11.092459
8	0	11.069845	11.069969	11.070094	45	1 = 25	23	0	11.092853
15	0	11.070219	11.070343	11.070468	30	2. 50	15	15	11.093247
30	0	11.070593	11.070717	11.070842	15	3. 75	30	15	11.093641
45	0	11.070967	11.071092	11.071217	0 51	4. 100	45	15	11.094035
9	0	11.071342	11.071467	11.071592	45	1 = 25	24	0	11.094430
15	0	11.071717	11.071842	11.071967	30	2. 50	15	15	11.094825
30	0	11.072092	11.072217	11.072343	15	3. 75	30	15	11.095221
45	0	11.072468	11.072593	11.072719	0 50	4. 100	45	15	11.095617
10	0	11.072844	11.072969	11.073095	45	1 = 25	25	0	11.096013
15	0	11.073220	11.073346	11.073471	30	2. 50	15	15	11.096410
30	0	11.073597	11.073723	11.073848	15	3. 75	30	15	11.096807
45	0	11.073974	11.074100	11.074225	0 49	4. 100	45	15	11.097205
11	0	11.074351	11.074477	11.074603	45	1 = 25	26	0	11.097602
15	0	11.074729	11.074855	11.074981	30	2. 50	15	15	11.098000
30	0	11.075107	11.075233	11.075359	15	3. 76	30	15	11.098399
45	0	11.075485	11.075611	11.075737	0 48	4. 101	45	15	11.098798
12	0	11.075864	11.075990	11.076116	45	1 = 25	27	0	11.099197
15	0	11.076243	11.076369	11.076495	30	2. 51	15	15	11.099596
30	0	11.076622	11.076748	11.076875	15	3. 76	30	15	11.099996
45	0	11.077001	11.077128	11.077255	0 47	4. 101	45	15	11.100397
13	0	11.077381	11.077508	11.077635	45	1 = 25	28	0	11.100797
15	0	11.077762	11.077888	11.078015	30	2. 51	15	15	11.101198
30	0	11.078142	11.078269	11.078396	15	3. 76	30	15	11.101600
45	0	11.078523	11.078650	11.078777	0 46	4. 102	45	15	11.102002
14	0	11.078904	11.079031	11.079159	45	1 = 25	29	0	11.102404
15	0	11.079286	11.079413	11.079540	30	2. 51	15	15	11.102806
30	0	11.079668	11.079795	11.079922	15	3. 76	30	15	11.103209
45	0	11.080050	11.080177	11.080305	0 45	4. 102	45	15	11.103612
		15"	10"	5"					
Minutes		Co-tangent of 4 degrees, or Tangent of 94 degrees.			Minutes		Co-tangent of 4 degrees, or Tangent of 94 degrees.		
		0'	5'	10'			0'	5'	10'
0	0	11.058048	11.058169	11.058291	45	1"	24	11.080432	11.080560
15	0	11.058412	11.058533	11.058655	30	2	49	11.080815	11.080943
30	0	11.058776	11.058898	11.059019	15	3	73	11.081199	11.081326
45	0	11.059141	11.059262	11.059384	0 59	4	97	11.081582	11.081710
1	0	11.059506	11.059627	11.059749	45	1	24	11.081966	11.082094
15	0	11.059871	11.059992	11.060114	30	2	49	11.082350	11.082478
30	0	11.060236	11.060358	11.060480	15	3	73	11.082735	11.082863
45	0	11.060602	11.060724	11.060846	0 58	4	97	11.083120	11.083248
2	0	11.060968	11.061090	11.061212	45	1	24	11.083505	11.083633
15	0	11.061334	11.061456	11.061579	30	2	49	11.083890	11.084019
30	0	11.061701	11.061823	11.061945	15	3	73	11.084276	11.084405
45	0	11.062068	11.062190	11.062313	0 57	4	98	11.084662	11.084791
3	0	11.062435	11.062557	11.062680	45	1	25	11.085049	11.085178
15	0	11.062803	11.062925	11.063048	30	2	49	11.085436	11.085565
30	0	11.063170	11.063293	11.063416	15	3	74	11.085823	11.085952
45	0	11.063539	11.063661	11.063784	0 56	4	98	11.086211	11.086340
4	0	11.063907	11.064030	11.064153	45	1	25	11.086599	11.086728
15	0	11.064276	11.064399	11.064522	30	2	49	11.086987	11.087117
30	0	11.064645	11.064768	11.064891	15	3	74	11.087376	11.087505
45	0	11.065014	11.065137	11.065261	0 55	4	98	11.087765	11.087894
5	0	11.065384	11.065507	11.065631	45	1	25	11.088154	11.088284
15	0	11.065754	11.065877	11.066001	30	2	49	11.088544	11.088674
30	0	11.066124	11.066248	11.066371	15	3	74	11.088934	11.089064
45	0	11.066495	11.066619	11.066742	0 54	4	99	11.089324	11.089454
6	0	11.066866	11.066990	11.067113	45	1	25	11.089715	11.089845
15	0	11.067237	11.067361	11.067485	30	2	50	11.090106	11.090236
30	0	11.067609	11.067733	11.067857	15	3	74	11.090497	11.090628
45	0	11.067981	11.068105	11.068229	0 53	4	99	11.090889	11.091019
7	0	11.068353	11.068477	11.068601	45	1	25	11.091281	11.091412
15	0	11.068725	11.068850	11.068974	30	2	50	11.091673	11.091804
30	0	11.069098	11.069223	11.069347	15	3	75	11.092066	11.092197
45	0	11.069471	11.069596	11.069720	0 52	4	99	11.092459	11.092590
8	0	11.069845	11.069969	11.070094	45	1	25	11.092853	11.092984
15	0	11.070219	11.070343	11.070468	30	2	50	11.093247	11.093378
30	0	11.070593	11.070717	11.070842	15	3	75	11.093641	11.093772
45	0	11.070967	11.071092	11.071217	0 51	4	100	11.094035	11.094167
9	0	11.071342	11.071467	11.071592	45	1	25	11.094430	11.094562
15	0	11.071717	11.071842	11.071967	30	2	50	11.094825	11.094957
30	0	11.072092	11.072217	11.072343	15	3	75	11.095221	11.095353
45	0	11.072468	11.072593	11.072719	0 50	4	100	11.095617	11.095749
10	0	11.072844	11.072969	11.073095	45	1	25	11.096013	11.096146
15	0	11.073220	11.073346	11.073471	30	2	50	11.096410	11.096542
30	0	11.073597	11.073723	11.073848	15	3	75	11.096807	11.096940
45	0	11.073974	11.074100	11.074225	0 49	4	100	11.097205	

LOGARITHMIC TANGENTS.

of 85 degrees, or of 175 degrees.				Tangent of 85 degrees, or Co-tangent of 175 degrees.									
5"		10"		Seconds Minutes	Proport. parts.	0"		5"		10"		Seconds Minutes	Proport. parts.
11.104150	11.104285	45	1" = 27	45	0	11.128936	11.129079	11.129221	45	1" = 29			
11.104558	11.104689	30	2. 54	15	15	11.129364	11.129506	11.129649	30	2. 57			
11.104959	11.105094	15	3. 81	30	30	11.129792	11.129934	11.130077	15	3. 86			
11.105364	11.105499	0	4. 108	45	45	11.130220	11.130363	11.130506	0	4. 114			
11.105769	11.105904	45	1 = 27	46	0	11.130649	11.130792	11.130935	45	1 = 29			
11.106175	11.106310	30	2. 54	15	15	11.131078	11.131221	11.131364	30	2. 57			
11.106581	11.106716	15	3. 81	30	30	11.131508	11.131651	11.131794	15	3. 88			
11.106987	11.107122	0	4. 108	45	45	11.131938	11.132081	11.132225	0	4. 114			
11.107394	11.107529	45	1 = 27	47	0	11.132368	11.132512	11.132655	45	1 = 29			
11.107801	11.107936	30	2. 54	15	15	11.132799	11.132943	11.133087	30	2. 58			
11.108208	11.108344	15	3. 81	30	30	11.133230	11.133374	11.133518	15	3. 86			
11.108616	11.108752	0	4. 109	45	45	11.133662	11.133806	11.133950	0	4. 115			
11.109024	11.109160	45	1 = 27	48	0	11.134094	11.134239	11.134383	45	1 = 29			
11.109433	11.109569	30	2. 55	15	15	11.134527	11.134671	11.134816	30	2. 58			
11.109842	11.109978	15	3. 82	30	30	11.134960	11.135105	11.135249	15	3. 87			
11.110251	11.110388	0	4. 109	45	45	11.135394	11.135538	11.135683	0	4. 115			
11.110661	11.110798	45	1 = 27	49	0	11.135827	11.135972	11.136117	45	1 = 29			
11.111071	11.111208	30	2. 55	15	15	11.136262	11.136407	11.136552	30	2. 58			
11.111482	11.111618	15	3. 82	30	30	11.136696	11.136842	11.136987	15	3. 87			
11.111892	11.112029	0	4. 109	45	45	11.137132	11.137277	11.137422	0	4. 116			
11.112304	11.112441	45	1 = 27	50	0	11.137567	11.137713	11.137858	45	1 = 29			
11.112715	11.112853	30	2. 55	15	15	11.138003	11.138149	11.138294	30	2. 58			
11.113127	11.113265	15	3. 82	30	30	11.138440	11.138585	11.138731	15	3. 87			
11.113540	11.113677	0	4. 110	45	45	11.138877	11.139022	11.139168	0	4. 117			
11.113953	11.114090	45	1 = 28	51	0	11.139314	11.139460	11.139606	45	1 = 29			
11.114366	11.114504	30	2. 55	15	15	11.139752	11.139898	11.140044	30	2. 58			
11.114779	11.114917	15	3. 83	30	30	11.140190	11.140336	11.140482	15	3. 88			
11.115193	11.115332	0	4. 110	45	45	11.140629	11.140775	11.140921	0	4. 117			
11.115608	11.115746	45	1 = 28	52	0	11.141068	11.141214	11.141361	45	1 = 29			
11.116023	11.116161	30	2. 55	15	15	11.141507	11.141654	11.141801	30	2. 59			
11.116438	11.116576	15	3. 83	30	30	11.141947	11.142094	11.142241	15	3. 88			
11.116853	11.116992	0	4. 111	45	45	11.142388	11.142535	11.142682	0	4. 117			
11.117269	11.117408	45	1 = 28	53	0	11.142829	11.142976	11.143123	45	1 = 29			
11.117686	11.117824	30	2. 56	15	15	11.143270	11.143417	11.143564	30	2. 59			
11.118102	11.118241	15	3. 83	30	30	11.143712	11.143859	11.144006	15	3. 88			
11.118519	11.118659	0	4. 111	45	45	11.144154	11.144301	11.144449	0	4. 118			
11.118937	11.119077	45	1 = 28	54	0	11.144597	11.144744	11.144892	45	1 = 30			
11.119355	11.119494	30	2. 56	15	15	11.145040	11.145187	11.145335	30	2. 59			
11.119773	11.119913	15	3. 84	30	30	11.145483	11.145631	11.145779	15	3. 89			
11.120192	11.120332	0	4. 112	45	45	11.145927	11.146075	11.146223	0	4. 118			
11.120611	11.120751	45	1 = 28	55	0	11.146372	11.146520	11.146668	45	1 = 30			
11.121031	11.121171	30	2. 56	15	15	11.146816	11.146965	11.147113	30	2. 59			
11.121451	11.121591	15	3. 84	30	30	11.147262	11.147410	11.147559	15	3. 89			
11.121871	11.122011	0	4. 112	45	45	11.147708	11.147856	11.148005	0	4. 119			
11.122292	11.122432	45	1 = 28	56	0	11.148154	11.148303	11.148452	45	1 = 30			
11.122713	11.122853	30	2. 56	15	15	11.148601	11.148750	11.148899	30	2. 60			
11.123134	11.123275	15	3. 84	30	30	11.149048	11.149197	11.149346	15	3. 89			
11.123556	11.123697	0	4. 112	45	45	11.149495	11.149645	11.149794	0	4. 119			
11.123979	11.124119	45	1 = 28	57	0	11.149943	11.150093	11.150242	45	1 = 30			
11.124401	11.124542	30	2. 56	15	15	11.150392	11.150542	11.150691	30	2. 60			
11.124824	11.124966	15	3. 85	30	30	11.150841	11.150991	11.151140	15	3. 90			
11.125248	11.125389	0	4. 113	45	45	11.151290	11.151440	11.151590	0	4. 120			
11.125672	11.125813	45	1 = 28	58	0	11.151740	11.151890	11.152040	45	1 = 30			
11.126096	11.126238	30	2. 57	15	15	11.152191	11.152341	11.152491	30	2. 60			
11.126521	11.126663	15	3. 85	30	30	11.152641	11.152792	11.152942	15	3. 90			
11.126946	11.127088	0	4. 113	45	45	11.153093	11.153243	11.153394	0	4. 120			
11.127372	11.127514	45	1 = 28	59	0	11.153545	11.153695	11.153846	45	1 = 30			
11.127798	11.127940	30	2. 57	15	15	11.153997	11.154148	11.154298	30	2. 60			
11.128224	11.128367	15	3. 85	30	30	11.154449	11.154600	11.154751	15	3. 91			
11.128651	11.128794	0	4. 114	45	45	11.154903	11.155054	11.155205	0	4. 121			
10"	5"	Seconds Minutes	Proport. parts.	Minutes Seconds	15" 10" 5"				Seconds Minutes	Proport. parts.			
of 4 degrees, or of 94 degrees.				Co-tangent of 4 degrees, or Tangent of 94 degrees.									

LOGARITHMIC TANGENTS.

		Tangent of 86 degrees, or Co-tangent of 176 degrees.							Tangent of 86 degrees, or Co-tangent of 176 degrees.						
Minutes	Seconds	0'	5'	10'	Seconds	Minutes	Proport. parts.	Seconds	Minutes	Seconds	0'	5'	10'	Seconds	Minutes
0	0	11.155356	11.155508	11.155659	45	1	30	15	0	11.183471	11.183632	11.183793	45	15	
15	15	11.155810	11.155962	11.156113	30	2	61	15	15	11.183955	11.184116	11.184278	30	30	
30	30	11.156265	11.156417	11.156568	15	3	91	30	30	11.184439	11.184601	11.184763	15	45	
45	45	11.156720	11.156872	11.157024	0	59	4.121	45	45	11.184925	11.185087	11.185249	0	44	
1	0	11.157175	11.157327	11.157479	45	1	30	16	0	11.185411	11.185573	11.185735	45	15	
15	15	11.157631	11.157784	11.157936	30	2	61	15	15	11.185897	11.186059	11.186221	30	30	
30	30	11.158088	11.158240	11.158392	15	3	91	30	30	11.186384	11.186546	11.186709	15	45	
45	45	11.158545	11.158697	11.158850	0	58	4.122	45	45	11.186871	11.187034	11.187197	0	43	
2	0	11.159002	11.159155	11.159307	45	1	31	17	0	11.187359	11.187522	11.187685	45	15	
15	15	11.159460	11.159613	11.159766	30	2	61	15	15	11.187848	11.188011	11.188174	30	30	
30	30	11.159919	11.160071	11.160224	15	3	92	30	30	11.188337	11.188500	11.188663	15	45	
45	45	11.160377	11.160530	11.160684	0	57	4.122	45	45	11.188826	11.188990	11.189153	0	42	
3	0	11.160837	11.160990	11.161143	45	1	31	18	0	11.189317	11.189480	11.189644	45	15	
15	15	11.161296	11.161450	11.161603	30	2	61	15	15	11.189807	11.189971	11.190135	30	30	
30	30	11.161757	11.161910	11.162064	15	3	92	30	30	11.190299	11.190462	11.190626	15	45	
45	45	11.162218	11.162371	11.162525	0	56	4.123	45	45	11.190790	11.190954	11.191119	0	41	
4	0	11.162679	11.162833	11.162987	45	1	31	19	0	11.191283	11.191447	11.191611	45	15	
15	15	11.163141	11.163295	11.163449	30	2	62	15	15	11.191776	11.191940	11.192105	30	30	
30	30	11.163603	11.163757	11.163911	15	3	92	30	30	11.192269	11.192434	11.192598	15	45	
45	45	11.164066	11.164220	11.164374	0	55	4.123	45	45	11.192763	11.192928	11.193093	0	40	
5	0	11.164529	11.164683	11.164838	45	1	31	20	0	11.193258	11.193423	11.193588	45	15	
15	15	11.164992	11.165147	11.165302	30	2	62	15	15	11.193753	11.193918	11.194083	30	30	
30	30	11.165457	11.165611	11.165766	15	3	93	30	30	11.194249	11.194414	11.194579	15	45	
45	45	11.165921	11.166076	11.166231	0	54	4.124	45	45	11.194745	11.194910	11.195076	0	39	
6	0	11.166387	11.166542	11.166697	45	1	31	21	0	11.195242	11.195407	11.195573	45	15	
15	15	11.166852	11.167008	11.167163	30	2	62	15	15	11.195739	11.195905	11.196071	30	30	
30	30	11.167318	11.167474	11.167629	15	3	93	30	30	11.196237	11.196403	11.196569	15	45	
45	45	11.167785	11.167941	11.168096	0	53	4.124	45	45	11.196736	11.196902	11.197068	0	38	
7	0	11.168252	11.168408	11.168564	45	1	31	22	0	11.197235	11.197401	11.197568	45	15	
15	15	11.168720	11.168876	11.169032	30	2	62	15	15	11.197734	11.197901	11.198068	30	30	
30	30	11.169188	11.169344	11.169500	15	3	94	30	30	11.198235	11.198401	11.198568	15	45	
45	45	11.169657	11.169813	11.169969	0	52	4.125	45	45	11.198735	11.198902	11.199070	0	37	
8	0	11.170126	11.170282	11.170439	45	1	31	23	0	11.199237	11.199404	11.199571	45	15	
15	15	11.170595	11.170751	11.170909	30	2	63	15	15	11.199739	11.199906	11.200074	30	30	
30	30	11.171066	11.171223	11.171379	15	3	94	30	30	11.200241	11.200409	11.200577	15	45	
45	45	11.171536	11.171693	11.171850	0	51	4.125	45	45	11.200744	11.200912	11.201080	0	36	
9	0	11.172008	11.172165	11.172322	45	1	31	24	0	11.201248	11.201416	11.201584	45	15	
15	15	11.172479	11.172637	11.172794	30	2	63	15	15	11.201752	11.201921	11.202089	30	30	
30	30	11.172951	11.173109	11.173266	15	3	94	30	30	11.202257	11.202426	11.202594	15	45	
45	45	11.173424	11.173582	11.173740	0	50	4.126	45	45	11.202763	11.202931	11.203100	0	35	
10	0	11.173897	11.174055	11.174213	45	1	32	25	0	11.203269	11.203437	11.203606	45	15	
15	15	11.174371	11.174529	11.174687	30	2	63	15	15	11.203775	11.203944	11.204113	30	30	
30	30	11.174845	11.175003	11.175162	15	3	95	30	30	11.204282	11.204452	11.204621	15	45	
45	45	11.175320	11.175478	11.175637	0	49	4.126	45	45	11.204790	11.204960	11.205129	0	34	
11	0	11.175795	11.175954	11.176112	45	1	32	26	0	11.205299	11.205468	11.205638	45	15	
15	15	11.176271	11.176430	11.176589	30	2	64	15	15	11.205808	11.205977	11.206147	30	30	
30	30	11.176747	11.176906	11.177065	15	3	95	30	30	11.206317	11.206487	11.206657	15	45	
45	45	11.177224	11.177383	11.177542	0	48	4.127	45	45	11.206827	11.206997	11.207168	0	33	
12	0	11.177702	11.177861	11.178020	45	1	32	27	0	11.207338	11.207508	11.207679	45	15	
15	15	11.178179	11.178339	11.178498	30	2	64	15	15	11.207849	11.208020	11.208191	30	30	
30	30	11.178658	11.178817	11.178977	15	3	96	30	30	11.208361	11.208532	11.208703	15	45	
45	45	11.179137	11.179296	11.179456	0	47	4.128	45	45	11.208874	11.209045	11.209216	0	32	
13	0	11.179616	11.179776	11.179936	45	1	32	28	0	11.209387	11.209558	11.209729	45	15	
15	15	11.180096	11.180256	11.180416	30	2	64	15	15	11.209901	11.210072	11.210244	30	30	
30	30	11.180577	11.180737	11.180897	15	3	96	30	30	11.210415	11.210587	11.210758	15	45	
45	45	11.181058	11.181218	11.181379	0	46	4.128	45	45	11.210930	11.211102	11.211274	0	31	
14	0	11.181539	11.181700	11.181860	45	1	32	29	0	11.211446	11.211618	11.211790	45	15	
15	15	11.182021	11.182182	11.182343	30	2	64	15	15	11.211962	11.212134	11.212306	30	30	
30	30	11.182504	11.182665	11.182826	15	3	97	30	30	11.212478	11.212651	11.212823	15	45	
45	45	11.182987	11.183148	11.183309	0	45	4.129	45	45	11.212996	11.213168	11.213341	0	30	
		15'	10'	5'							15'	10'	5'		
		Co-tangent of 3 degrees, or Tangent of 93 degrees.									Co-tangent of 3 degrees, or Tangent of 93 degrees.				

LOGARITHMIC TANGENTS.

Tangent of 86 degrees, or Co-tangent of 176 degrees.			Tangent of 86 degrees, or Co-tangent of 176 degrees.			Tangent of 86 degrees, or Co-tangent of 176 degrees.			Tangent of 86 degrees, or Co-tangent of 176 degrees.		
5'	10'	Seconds	Minutes	Proport. parts.	Seconds	Minutes	Proport. parts.	Seconds	Minutes	Proport. parts.	Seconds
35.14	11.213687	11.213860	45	1" = 35	45	0	11.245773	11.245959	11.246145	45	1" = 37
40.32	11.214205	11.214379	30	2. 69	15	15	11.246331	11.246518	11.246704	30	2. 75
45.52	11.214725	11.214898	15	3. 104	30	30	11.246890	11.247077	11.247264	15	3. 112
50.72	11.215245	11.215418	0	4. 139	45	45	11.247450	11.247637	11.247824	0	4. 149
55.92	11.215766	11.215939	45	1" = 35	46	0	11.248011	11.248198	11.248385	45	1" = 37
61.13	11.216287	11.216461	30	2. 70	15	15	11.248572	11.248759	11.248946	30	2. 75
66.35	11.216809	11.216983	15	3. 104	30	30	11.249134	11.249321	11.249509	15	3. 112
71.57	11.217331	11.217506	0	4. 139	45	45	11.249697	11.249884	11.250072	0	4. 150
76.80	11.217855	11.218029	45	1" = 35	47	0	11.250260	11.250448	11.250636	45	1" = 38
82.04	11.218378	11.218553	30	2. 70	15	15	11.250824	11.251012	11.251200	30	2. 75
87.28	11.218903	11.219078	15	3. 105	30	30	11.251389	11.251577	11.251766	15	3. 113
92.53	11.219428	11.219603	0	4. 140	45	45	11.251954	11.252143	11.252332	0	4. 151
97.78	11.219953	11.220129	45	1" = 35	48	0	11.252521	11.252710	11.252899	45	1" = 38
103.04	11.220480	11.220655	30	2. 70	15	15	11.253088	11.253277	11.253466	30	2. 76
108.31	11.221007	11.221182	15	3. 105	30	30	11.253656	11.253845	11.254034	15	3. 114
113.58	11.221534	11.221710	0	4. 140	45	45	11.254224	11.254414	11.254603	0	4. 151
118.86	11.222063	11.222239	45	1" = 35	49	0	11.254793	11.254983	11.255173	45	1" = 38
124.15	11.222591	11.222768	30	2. 71	15	15	11.255363	11.255553	11.255744	30	2. 76
129.44	11.223121	11.223297	15	3. 106	30	30	11.255934	11.256124	11.256315	15	3. 114
134.74	11.223651	11.223828	0	4. 141	45	45	11.256505	11.256696	11.256887	0	4. 152
140.05	11.224182	11.224359	45	1" = 35	50	0	11.257078	11.257269	11.257460	45	1" = 38
145.36	11.224713	11.224890	30	2. 71	15	15	11.257651	11.257842	11.258033	30	2. 77
150.68	11.225245	11.225423	15	3. 106	30	30	11.258224	11.258416	11.258607	15	3. 115
156.00	11.225778	11.225956	0	4. 142	45	45	11.258799	11.258991	11.259182	0	4. 153
161.33	11.226311	11.226489	45	1" = 36	51	0	11.259374	11.259566	11.259758	45	1" = 38
166.67	11.226845	11.227024	30	2. 71	15	15	11.259950	11.260142	11.260335	30	2. 77
172.02	11.227380	11.227558	15	3. 107	30	30	11.260527	11.260719	11.260912	15	3. 115
177.37	11.227915	11.228094	0	4. 143	45	45	11.261104	11.261297	11.261490	0	4. 154
182.73	11.228451	11.228630	45	1" = 36	52	0	11.261683	11.261876	11.262069	45	1" = 39
188.09	11.228988	11.229167	30	2. 72	15	15	11.262262	11.262455	11.262648	30	2. 77
193.46	11.229525	11.229705	15	3. 107	30	30	11.262842	11.263035	11.263229	15	3. 116
198.84	11.230063	11.230243	0	4. 143	45	45	11.263422	11.263616	11.263810	0	4. 155
204.22	11.230602	11.230782	45	1" = 36	53	0	11.264004	11.264198	11.264392	45	1" = 39
209.61	11.231141	11.231321	30	2. 72	15	15	11.264586	11.264780	11.264974	30	2. 78
215.01	11.231681	11.231861	15	3. 108	30	30	11.265169	11.265363	11.265558	15	3. 117
220.41	11.232222	11.232402	0	4. 144	45	45	11.265752	11.265947	11.266142	0	4. 155
225.82	11.232763	11.232944	45	1" = 36	54	0	11.266337	11.266532	11.266727	45	1" = 39
231.24	11.233305	11.233486	30	2. 72	15	15	11.266922	11.267117	11.267313	30	2. 78
236.67	11.233848	11.234029	15	3. 109	30	30	11.267508	11.267704	11.267899	15	3. 117
242.10	11.234391	11.234572	0	4. 145	45	45	11.268095	11.268291	11.268487	0	4. 156
247.53	11.234935	11.235116	45	1" = 36	55	0	11.268683	11.268879	11.269075	45	1" = 39
252.98	11.235480	11.235661	30	2. 73	15	15	11.269271	11.269467	11.269664	30	2. 79
258.43	11.236025	11.236207	15	3. 109	30	30	11.269860	11.270057	11.270253	15	3. 118
263.89	11.236571	11.236753	0	4. 145	45	45	11.270450	11.270647	11.270844	0	4. 157
269.35	11.237118	11.237300	45	1" = 37	56	0	11.271041	11.271238	11.271435	45	1" = 40
274.82	11.237665	11.237848	30	2. 73	15	15	11.271633	11.271830	11.272027	30	2. 79
280.30	11.238213	11.238396	15	3. 110	30	30	11.272225	11.272423	11.272620	15	3. 119
285.79	11.238762	11.238945	0	4. 146	45	45	11.272818	11.273016	11.273214	0	4. 158
291.28	11.239311	11.239495	45	1" = 37	57	0	11.273412	11.273610	11.273809	45	1" = 40
296.78	11.239861	11.240045	30	2. 73	15	15	11.274007	11.274206	11.274404	30	2. 79
302.29	11.240412	11.240596	15	3. 110	30	30	11.274603	11.274801	11.275000	15	3. 119
307.80	11.240964	11.241148	0	4. 147	45	45	11.275199	11.275398	11.275597	0	4. 159
313.32	11.241516	11.241700	45	1" = 37	58	0	11.275796	11.275996	11.276195	45	1" = 40
318.85	11.242069	11.242253	30	2. 74	15	15	11.276395	11.276594	11.276794	30	2. 80
324.38	11.242623	11.242807	15	3. 111	30	30	11.276993	11.277193	11.277393	15	3. 120
329.92	11.243177	11.243362	0	4. 148	45	45	11.277593	11.277793	11.277993	0	4. 160
335.47	11.243732	11.243917	45	1" = 37	59	0	11.278194	11.278394	11.278595	45	1" = 40
341.02	11.244288	11.244473	30	2. 74	15	15	11.278795	11.278996	11.279196	30	2. 80
346.59	11.244844	11.245030	15	3. 111	30	30	11.279397	11.279598	11.279799	15	3. 120
352.15	11.245401	11.245587	0	4. 148	45	45	11.280000	11.280202	11.280403	0	4. 161
10'	5'	Seconds	Minutes	Proport. parts.	Minutes	Seconds	15'	10'	5'	Seconds	Minutes
Tangent of 3 degrees, or Tangent of 93 degrees.			Co-tangent of 3 degrees, or Tangent of 93 degrees.			Co-tangent of 3 degrees, or Tangent of 93 degrees.			Co-tangent of 3 degrees, or Tangent of 93 degrees.		

LOGARITHMIC TANGENTS.

Minutes Seconds		Tangent of 87 degrees, or Co-tangent of 177 degrees.			Minutes Seconds		Proport. parts.	Minutes Seconds		Tangent of 87 degrees, or Co-tangent of 177 degrees.		
		0'	5'	10'						0'	5'	10'
0	0	11.280604	11.280806	11.281007	45	1" = 40		15	0	11.318456	11.318676	11.318896
15	15	11.281209	11.281411	11.281613	30	2. 81		15	15	11.319116	11.319336	11.319556
30	30	11.281814	11.282016	11.282219	15	3. 121		30	30	11.319776	11.319997	11.320217
45	45	11.282421	11.282623	11.282826	0	4. 162		45	45	11.320438	11.320659	11.320879
1	0	11.283028	11.283231	11.283433	45	1 = 41		16	0	11.321100	11.321321	11.321543
15	15	11.283636	11.283839	11.284042	30	2. 81		15	15	11.321764	11.321985	11.322207
30	30	11.284245	11.284448	11.284651	15	3. 122		30	30	11.322428	11.322650	11.322872
45	45	11.284855	11.285058	11.285262	0	4. 162		45	45	11.323094	11.323316	11.323538
2	0	11.285465	11.285669	11.285873	45	1 = 41		17	0	11.323761	11.323983	11.324206
15	15	11.286077	11.286281	11.286485	30	2. 82		15	15	11.324428	11.324651	11.324874
30	30	11.286689	11.286894	11.287098	15	3. 123		30	30	11.325097	11.325320	11.325543
45	45	11.287303	11.287507	11.287712	0	4. 163		45	45	11.325766	11.325990	11.326214
3	0	11.287917	11.288121	11.288326	45	1 = 41		18	0	11.326437	11.326661	11.326885
15	15	11.288531	11.288737	11.288942	30	2. 82		15	15	11.327109	11.327333	11.327557
30	30	11.289147	11.289353	11.289558	15	3. 123		30	30	11.327782	11.328006	11.328231
45	45	11.289764	11.289970	11.290176	0	4. 164		45	45	11.328455	11.328680	11.328905
4	0	11.290381	11.290588	11.290794	45	1 = 41		19	0	11.329130	11.329355	11.329581
15	15	11.291000	11.291206	11.291413	30	2. 83		15	15	11.329806	11.330032	11.330257
30	30	11.291619	11.291826	11.292033	15	3. 124		30	30	11.330483	11.330709	11.330935
45	45	11.292239	11.292446	11.292653	0	4. 165		45	45	11.331161	11.331387	11.331614
5	0	11.292860	11.293066	11.293275	45	1 = 42		20	0	11.331840	11.332067	11.332293
15	15	11.293482	11.293690	11.293897	30	2. 83		15	15	11.332520	11.332747	11.332974
30	30	11.294105	11.294313	11.294521	15	3. 125		30	30	11.333201	11.333429	11.333656
45	45	11.294729	11.294937	11.295145	0	4. 166		45	45	11.333884	11.334111	11.334339
6	0	11.295353	11.295562	11.295770	45	1 = 42		21	0	11.334567	11.334795	11.335023
15	15	11.295979	11.296188	11.296397	30	2. 84		15	15	11.335251	11.335480	11.335708
30	30	11.296605	11.296814	11.297023	15	3. 125		30	30	11.335937	11.336165	11.336394
45	45	11.297233	11.297442	11.297651	0	4. 167		45	45	11.336623	11.336852	11.337081
7	0	11.297861	11.298071	11.298280	45	1 = 42		22	0	11.337311	11.337540	11.337770
15	15	11.298490	11.298700	11.298910	30	2. 84		15	15	11.337999	11.338229	11.338459
30	30	11.299120	11.299330	11.299541	15	3. 126		30	30	11.338689	11.338919	11.339150
45	45	11.299751	11.299961	11.300172	0	4. 168		45	45	11.339380	11.339611	11.339841
8	0	11.300383	11.300594	11.300805	45	1 = 42		23	0	11.340072	11.340303	11.340534
15	15	11.301016	11.301227	11.301438	30	2. 85		15	15	11.340765	11.340996	11.341228
30	30	11.301649	11.301861	11.302072	15	3. 127		30	30	11.341459	11.341691	11.341923
45	45	11.302284	11.302496	11.302707	0	4. 169		45	45	11.342155	11.342387	11.342619
9	0	11.302919	11.303131	11.303344	45	1 = 43		24	0	11.342851	11.343083	11.343316
15	15	11.303556	11.303768	11.303981	30	2. 85		15	15	11.343548	11.343781	11.344014
30	30	11.304193	11.304406	11.304619	15	3. 128		30	30	11.344247	11.344480	11.344713
45	45	11.304831	11.305044	11.305258	0	4. 170		45	45	11.344947	11.345180	11.345414
10	0	11.305471	11.305684	11.305897	45	1 = 43		25	0	11.345648	11.345882	11.346116
15	15	11.306111	11.306324	11.306538	30	2. 86		15	15	11.346350	11.346584	11.346818
30	30	11.306752	11.306966	11.307180	15	3. 128		30	30	11.347053	11.347287	11.347522
45	45	11.307394	11.307608	11.307823	0	4. 171		45	45	11.347757	11.347992	11.348227
11	0	11.308037	11.308252	11.308466	45	1 = 43		26	0	11.348462	11.348698	11.348933
15	15	11.308681	11.308896	11.309111	30	2. 86		15	15	11.349169	11.349405	11.349641
30	30	11.309326	11.309541	11.309756	15	3. 129		30	30	11.349877	11.350113	11.350349
45	45	11.309972	11.310187	11.310403	0	4. 172		45	45	11.350586	11.350822	11.351059
12	0	11.310619	11.310834	11.311050	45	1 = 43		27	0	11.351296	11.351532	11.351769
15	15	11.311266	11.311483	11.311699	30	2. 87		15	15	11.352007	11.352244	11.352481
30	30	11.311915	11.312132	11.312348	15	3. 130		30	30	11.352719	11.352957	11.353195
45	45	11.312565	11.312782	11.312999	0	4. 173		45	45	11.353432	11.353671	11.353909
13	0	11.313216	11.313433	11.313650	45	1 = 44		28	0	11.354147	11.354386	11.354624
15	15	11.313867	11.314085	11.314302	30	2. 87		15	15	11.354863	11.355102	11.355341
30	30	11.314520	11.314738	11.314955	15	3. 131		30	30	11.355580	11.355819	11.356059
45	45	11.315173	11.315392	11.315610	0	4. 174		45	45	11.356298	11.356538	11.356778
14	0	11.315828	11.316046	11.316265	45	1 = 44		29	0	11.357017	11.357258	11.357498
15	15	11.316484	11.316702	11.316921	30	2. 88		15	15	11.357738	11.357978	11.358219
30	30	11.317140	11.317359	11.317578	15	3. 131		30	30	11.358460	11.358701	11.358942
45	45	11.317798	11.318017	11.318237	0	4. 175		45	45	11.359183	11.359424	11.359665
		15"	10"	5"			Proport. parts.			15"	10"	5"
Minutes Seconds		Co-tangent of 2 degrees, or Tangent of 92 degrees.			Minutes Seconds		Proport. parts.	Minutes Seconds		Co-tangent of 2 degrees, or Tangent of 92 degrees.		
		0'	5'	10'						0'	5'	10'

LOGARITHMIC TANGENTS.

		Tangent of 87 degrees, or Co-tangent of 177 degrees.					Tangent of 87 degrees, or Co-tangent of 177 degrees.							
Minutes	Seconds	0'	5'	10'	Seconds	Minutes	Minutes	Seconds	0'	5'	10'	Seconds	Minutes	Proport. parts.
30	0	11.359907	11.360148	11.360390	45	1" = 48	45	0	11.405717	11.405985	11.406254	45	1" = 54	45
15	0	11.360632	11.360874	11.361116	30	2. 97	15	15	11.406523	11.406791	11.407061	30	2. 108	15
0	0	11.361359	11.361601	11.361844	15	3. 145	30	30	11.407330	11.407599	11.407869	15	3. 162	30
45	0	11.362087	11.362329	11.362572	0	4. 194	45	45	11.408139	11.408409	11.408679	0	4. 215	45
31	0	11.362815	11.363059	11.363302	45	1 = 49	46	0	11.408949	11.409219	11.409490	45	1 = 54	45
15	0	11.363546	11.363789	11.364033	30	2. 98	15	15	11.409761	11.410032	11.410303	30	2. 108	15
0	0	11.364277	11.364521	11.364765	15	3. 146	30	30	11.410574	11.410846	11.411117	15	3. 163	30
45	0	11.365010	11.365254	11.365499	0	4. 195	45	45	11.411389	11.411661	11.411933	0	4. 217	45
31	0	11.365744	11.365989	11.366234	45	1 = 49	47	0	11.412205	11.412478	11.412751	45	1 = 55	45
15	0	11.366479	11.366724	11.366970	30	2. 98	15	15	11.413023	11.413296	11.413570	30	2. 109	15
0	0	11.367215	11.367461	11.367707	15	3. 147	30	30	11.413843	11.414116	11.414390	15	3. 164	30
45	0	11.367953	11.368199	11.368445	0	4. 196	45	45	11.414664	11.414938	11.415212	0	4. 219	45
31	0	11.368692	11.368938	11.369185	45	1 = 49	48	0	11.415486	11.415761	11.416036	45	1 = 55	45
15	0	11.369432	11.369679	11.369926	30	2. 99	15	15	11.416311	11.416586	11.416861	30	2. 110	15
0	0	11.370173	11.370421	11.370668	15	3. 148	30	30	11.417136	11.417412	11.417688	15	3. 165	30
45	0	11.370916	11.371164	11.371412	0	4. 198	45	45	11.417963	11.418240	11.418516	0	4. 220	45
34	0	11.371660	11.371908	11.372156	45	1 = 50	49	0	11.418792	11.419069	11.419346	45	1 = 55	45
15	0	11.372405	11.372654	11.372902	30	2. 100	15	15	11.419623	11.419900	11.420177	30	2. 111	15
0	0	11.373151	11.373401	11.373650	15	3. 149	30	30	11.420455	11.420732	11.421010	15	3. 166	30
45	0	11.373899	11.374149	11.374398	0	4. 199	45	45	11.421288	11.421566	11.421845	0	4. 222	45
35	0	11.374648	11.374898	11.375148	45	1 = 50	50	0	11.422123	11.422402	11.422681	45	1 = 56	45
15	0	11.375398	11.375649	11.375899	30	2. 100	15	15	11.422960	11.423239	11.423519	30	2. 112	15
0	0	11.376150	11.376401	11.376652	15	3. 150	30	30	11.423799	11.424078	11.424358	15	3. 168	30
45	0	11.376903	11.377154	11.377406	0	4. 201	45	45	11.424639	11.424919	11.425199	0	4. 224	45
36	0	11.377657	11.377909	11.378161	45	1 = 50	51	0	11.425480	11.425761	11.426042	45	1 = 56	45
15	0	11.378413	11.378665	11.378917	30	2. 101	15	15	11.426323	11.426605	11.426887	30	2. 113	15
0	0	11.379170	11.379422	11.379675	15	3. 151	30	30	11.427168	11.427450	11.427733	15	3. 169	30
45	0	11.379928	11.380181	11.380434	0	4. 202	45	45	11.428015	11.428297	11.428580	0	4. 225	45
37	0	11.380687	11.380941	11.381194	45	1 = 51	52	0	11.428863	11.429146	11.429429	45	1 = 57	45
15	0	11.381448	11.381702	11.381956	30	2. 102	15	15	11.429713	11.429997	11.430280	30	2. 114	15
0	0	11.382210	11.382464	11.382719	15	3. 152	30	30	11.430564	11.430848	11.431133	15	3. 170	30
45	0	11.382974	11.383228	11.383483	0	4. 203	45	45	11.431418	11.431702	11.431987	0	4. 227	45
38	0	11.383738	11.383994	11.384249	45	1 = 51	53	0	11.432272	11.432558	11.432843	45	1 = 57	45
15	0	11.384505	11.384760	11.385016	30	2. 102	15	15	11.433129	11.433415	11.433701	30	2. 114	15
0	0	11.385272	11.385528	11.385784	15	3. 154	30	30	11.433987	11.434274	11.434560	15	3. 172	30
45	0	11.386041	11.386297	11.386554	0	4. 205	45	45	11.434847	11.435134	11.435421	0	4. 229	45
39	0	11.386811	11.387068	11.387325	45	1 = 52	54	0	11.435709	11.435996	11.436284	45	1 = 58	45
15	0	11.387583	11.387840	11.388098	30	2. 103	15	15	11.436572	11.436860	11.437149	30	2. 115	15
0	0	11.388356	11.388614	11.388872	15	3. 155	30	30	11.437437	11.437726	11.438015	15	3. 173	30
45	0	11.389130	11.389388	11.389647	0	4. 206	45	45	11.438304	11.438593	11.438883	0	4. 231	45
40	0	11.389906	11.390164	11.390424	45	1 = 52	55	0	11.439172	11.439462	11.439752	45	1 = 58	45
15	0	11.390683	11.390942	11.391202	30	2. 104	15	15	11.440043	11.440333	11.440624	30	2. 116	15
0	0	11.391461	11.391721	11.391981	15	3. 156	30	30	11.440915	11.441206	11.441497	15	3. 174	30
45	0	11.392241	11.392501	11.392762	0	4. 208	45	45	11.441788	11.442080	11.442372	0	4. 233	45
41	0	11.393022	11.393283	11.393544	45	1 = 52	56	0	11.442664	11.442956	11.443248	45	1 = 59	45
15	0	11.393805	11.394066	11.394327	30	2. 105	15	15	11.443541	11.443834	11.444127	30	2. 117	15
0	0	11.394589	11.394851	11.395112	15	3. 157	30	30	11.444420	11.444713	11.445007	15	3. 176	30
45	0	11.395374	11.395637	11.395899	0	4. 209	45	45	11.445301	11.445595	11.445889	0	4. 234	45
42	0	11.396161	11.396424	11.396687	45	1 = 53	57	0	11.446183	11.446478	11.446773	45	1 = 59	45
15	0	11.396950	11.397213	11.397476	30	2. 105	15	15	11.447068	11.447363	11.447658	30	2. 118	15
0	0	11.397739	11.398003	11.398267	15	3. 158	30	30	11.447954	11.448250	11.448546	15	3. 177	30
45	0	11.398531	11.398795	11.399059	0	4. 211	45	45	11.448842	11.449138	11.449435	0	4. 236	45
43	0	11.399323	11.399588	11.399852	45	1 = 53	58	0	11.449732	11.450029	11.450326	45	1 = 60	45
15	0	11.400117	11.400382	11.400648	30	2. 106	15	15	11.450623	11.450921	11.451219	30	2. 119	15
0	0	11.400913	11.401178	11.401444	15	3. 159	30	30	11.451517	11.451815	11.452113	15	3. 179	30
45	0	11.401710	11.401976	11.402242	0	4. 212	45	45	11.452412	11.452711	11.453010	0	4. 238	45
44	0	11.402508	11.402775	11.403041	45	1 = 53	59	0	11.453309	11.453609	11.453908	45	1 = 60	45
15	0	11.403308	11.403575	11.403842	30	2. 107	15	15	11.454208	11.454508	11.454808	30	2. 120	15
0	0	11.404110	11.404377	11.404645	15	3. 160	30	30	11.455109	11.455410	11.455710	15	3. 180	30
45	0	11.404912	11.405180	11.405448	0	4. 214	45	45	11.456012	11.456313	11.456614	0	4. 240	45
		15'	10'	5'	Seconds	Minutes			15'	10'	5'	Seconds	Minutes	Proport. parts.
		Co-tangent of 2 degrees, or Tangent of 92 degrees.							Co-tangent of 2 degrees, or Tangent of 92 degrees.					

LOGARITHMIC TANGENTS.

Minutes Seconds		Tangent of 88 degrees, or Co-tangent of 178 degrees.									
		0"	1"	2"	3"	4"	5"	6"	7"	8"	9"
0	0	11. 456916	456977	457037	457097	457158	457218	457279	457339	457399	457460
0	10	11. 457520	457581	457641	457702	457762	457823	457883	457944	458004	458065
0	20	11. 458125	458186	458246	458307	458367	458428	458489	458549	458610	458670
0	30	11. 458731	458792	458852	458913	458974	459034	459095	459155	459216	459277
0	40	11. 459338	459398	459459	459520	459580	459641	459702	459763	459823	459884
0	50	11. 459945	460006	460067	460127	460188	460249	460310	460371	460432	460493
1	0	11. 460553	460614	460675	460736	460797	460858	460919	460980	461041	461102
1	10	11. 461163	461223	461284	461345	461406	461467	461528	461589	461650	461712
1	20	11. 461773	461834	461895	461956	462017	462078	462139	462200	462261	462322
1	30	11. 462383	462445	462506	462567	462628	462689	462750	462812	462873	462934
1	40	11. 462995	463056	463118	463179	463240	463301	463363	463424	463485	463546
1	50	11. 463608	463669	463730	463792	463853	463914	463976	464037	464098	464160
2	0	11. 464221	464283	464344	464405	464467	464528	464590	464651	464713	464774
2	10	11. 464836	464897	464959	465020	465082	465143	465205	465266	465328	465389
2	20	11. 465451	465512	465574	465635	465697	465759	465820	465882	465944	466005
2	30	11. 466067	466128	466190	466252	466313	466375	466437	466499	466560	466622
2	40	11. 466684	466745	466807	466869	466931	466993	467054	467116	467178	467240
2	50	11. 467302	467363	467425	467487	467549	467611	467673	467735	467796	467858
3	0	11. 467920	467982	468044	468106	468168	468230	468292	468354	468416	468478
3	10	11. 468540	468602	468664	468726	468788	468850	468912	468974	469036	469098
3	20	11. 469160	469222	469284	469347	469409	469471	469533	469595	469657	469719
3	30	11. 469782	469844	469906	469968	470030	470093	470155	470217	470279	470342
3	40	11. 470404	470466	470528	470591	470653	470715	470778	470840	470902	470965
3	50	11. 471027	471089	471152	471214	471276	471339	471401	471464	471526	471589
4	0	11. 471651	471713	471776	471838	471901	471963	472026	472088	472151	472213
4	10	11. 472276	472338	472401	472464	472526	472589	472651	472714	472776	472839
4	20	11. 472902	472964	473027	473090	473152	473215	473278	473340	473403	473466
4	30	11. 473588	473651	473714	473777	473840	473903	473966	474029	474092	474155
4	40	11. 474156	474219	474282	474345	474408	474471	474534	474597	474660	474723
4	50	11. 474785	474847	474910	474973	475036	475099	475162	475225	475288	475351
5	0	11. 475414	475477	475540	475603	475666	475729	475792	475855	475918	475981
5	10	11. 476044	476107	476170	476233	476297	476360	476423	476486	476549	476612
5	20	11. 476676	476739	476802	476865	476928	476992	477055	477118	477181	477244
5	30	11. 477308	477371	477434	477497	477561	477624	477687	477751	477814	477877
5	40	11. 477941	478004	478068	478131	478194	478258	478321	478385	478448	478511
5	50	11. 478575	478638	478702	478765	478829	478892	478956	479019	479083	479146
6	0	11. 479210	479273	479337	479400	479464	479528	479591	479655	479718	479782
6	10	11. 479846	479909	479973	480037	480100	480164	480228	480291	480355	480419
6	20	11. 480482	480546	480610	480674	480737	480801	480865	480929	480993	481056
6	30	11. 481120	481184	481248	481312	481375	481439	481503	481567	481631	481695
6	40	11. 481759	481823	481887	481951	482015	482078	482142	482206	482270	482334
6	50	11. 482398	482462	482526	482590	482654	482719	482783	482847	482911	482975
7	0	11. 483039	483103	483167	483231	483295	483360	483424	483488	483552	483616
7	10	11. 483680	483745	483809	483873	483937	484002	484066	484130	484194	484259
7	20	11. 484323	484387	484451	484516	484580	484644	484709	484773	484837	484902
7	30	11. 484966	485031	485095	485159	485224	485288	485353	485417	485482	485546
7	40	11. 485611	485675	485740	485804	485869	485933	485998	486062	486127	486191
7	50	11. 486256	486320	486385	486450	486514	486579	486644	486708	486773	486837
8	0	11. 486902	486967	487031	487096	487161	487226	487290	487355	487420	487485
8	10	11. 487549	487614	487679	487744	487808	487873	487938	488003	488068	488133
8	20	11. 488197	488262	488327	488392	488457	488522	488587	488652	488717	488782
8	30	11. 488847	488912	488977	489042	489107	489172	489237	489302	489367	489432
8	40	11. 489497	489562	489627	489692	489757	489822	489887	489952	490018	490083
8	50	11. 490148	490213	490278	490343	490409	490474	490539	490604	490669	490735
9	0	11. 490800	490865	490930	490996	491061	491126	491192	491257	491322	491388
9	10	11. 491453	491518	491584	491649	491714	491780	491845	491911	491976	492042
9	20	11. 492107	492172	492238	492303	492369	492434	492500	492565	492631	492696
9	30	11. 492762	492828	492893	492959	493024	493090	493155	493221	493287	493352
9	40	11. 493418	493484	493549	493615	493681	493746	493812	493878	493943	494009
9	50	11. 494075	494141	494206	494272	494338	494404	494470	494535	494601	494667
Minutes Seconds		10'	9'	8'	7'	6'	5'	4'	3'	2'	1'
Co-tangent of 1 degree, or Tangent of 91 degrees.											

LOGARITHMIC TANGENTS.

		Tangent of 88 degrees, or Co-tangent of 178 degrees.										
Minutes	Seconds	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	Seconds
		11.494733	494799	494865	494930	494996	495062	495128	495194	495260	495326	50
10	10	11.495392	495458	495524	495590	495656	495722	495788	495854	495920	495986	40
20	10	11.496051	496118	496184	496250	496316	496382	496448	496514	496581	496647	30
30	10	11.496713	496779	496845	496911	496977	497044	497110	497176	497242	497309	20
40	10	11.497375	497441	497507	497574	497640	497706	497772	497839	497905	497971	10
50	10	11.498038	498104	498170	498237	498303	498370	498436	498502	498569	498635	04
11	0	11.498702	498768	498835	498901	498968	499034	499101	499167	499234	499300	50
10	10	11.499367	499433	499500	499566	499633	499700	499766	499833	499900	499966	40
20	10	11.500033	500099	500166	500233	500300	500366	500433	500500	500566	500633	30
30	10	11.500700	500767	500833	500900	500967	501034	501101	501167	501234	501301	20
40	10	11.501368	501435	501502	501569	501635	501702	501769	501836	501903	501970	10
50	10	11.502037	502104	502171	502238	502305	502372	502439	502506	502573	502640	04
12	0	11.502707	502774	502841	502908	502976	503043	503110	503177	503244	503311	50
10	10	11.503378	503446	503513	503580	503647	503714	503782	503849	503916	503983	40
20	10	11.504051	504118	504185	504252	504320	504387	504454	504522	504589	504656	30
30	10	11.504724	504791	504859	504926	504993	505061	505128	505196	505263	505331	20
40	10	11.505398	505466	505533	505601	505668	505736	505803	505871	505938	506006	10
50	10	11.506073	506141	506209	506276	506344	506411	506479	506547	506614	506682	04
13	0	11.506750	506817	506885	506953	507021	507088	507156	507224	507292	507359	50
10	10	11.507427	507495	507563	507631	507698	507766	507834	507902	507970	508038	40
20	10	11.508106	508174	508242	508309	508377	508445	508513	508581	508649	508717	30
30	10	11.508785	508853	508921	508989	509057	509125	509193	509262	509330	509398	20
40	10	11.509466	509534	509602	509670	509738	509807	509875	509943	510011	510079	10
50	10	11.510148	510216	510284	510352	510421	510489	510557	510625	510694	510762	04
14	0	11.510830	510899	510967	511035	511104	511172	511240	511309	511377	511446	50
10	10	11.511514	511583	511651	511719	511788	511856	511925	511993	512062	512130	40
20	10	11.512199	512268	512336	512405	512473	512542	512610	512679	512748	512816	30
30	10	11.512885	512954	513022	513091	513160	513228	513297	513366	513435	513503	20
40	10	11.513572	513641	513710	513778	513847	513916	513985	514054	514122	514191	10
50	10	11.514260	514329	514398	514467	514536	514605	514674	514743	514812	514880	04
15	0	11.514949	515018	515087	515156	515225	515294	515364	515433	515502	515571	50
10	10	11.515640	515709	515778	515847	515916	515985	516055	516124	516193	516262	40
20	10	11.516331	516400	516470	516539	516608	516677	516747	516816	516885	516954	30
30	10	11.517024	517093	517162	517232	517301	517370	517440	517509	517579	517648	20
40	10	11.517717	517787	517856	517926	517995	518065	518134	518204	518273	518343	10
50	10	11.518412	518482	518551	518621	518690	518760	518830	518899	518969	519038	04
16	0	11.519108	519178	519247	519317	519387	519456	519526	519596	519665	519735	50
10	10	11.519805	519875	519944	520014	520084	520154	520224	520293	520363	520433	40
20	10	11.520503	520573	520643	520713	520783	520852	520922	520992	521062	521132	30
30	10	11.521202	521272	521342	521412	521482	521552	521622	521692	521762	521832	20
40	10	11.521903	521973	522043	522113	522183	522253	522323	522393	522464	522534	10
50	10	11.522604	522674	522744	522815	522885	522955	523025	523096	523166	523236	04
17	0	11.523307	523377	523447	523518	523588	523658	523729	523799	523870	523940	50
10	10	11.524010	524081	524151	524222	524292	524363	524433	524504	524574	524645	40
20	10	11.524715	524786	524856	524927	524997	525068	525139	525209	525280	525351	30
30	10	11.525421	525492	525563	525633	525704	525775	525845	525916	525987	526058	20
40	10	11.526128	526199	526270	526341	526412	526482	526553	526624	526695	526766	10
50	10	11.526837	526908	526979	527049	527120	527191	527262	527333	527404	527475	04
18	0	11.527546	527617	527688	527759	527830	527901	527972	528044	528115	528186	50
10	10	11.528257	528328	528399	528470	528541	528613	528684	528755	528826	528897	40
20	10	11.528969	529040	529111	529182	529254	529325	529396	529468	529539	529610	30
30	10	11.529682	529753	529824	529896	529967	530038	530110	530181	530253	530324	20
40	10	11.530396	530467	530539	530610	530682	530753	530825	530896	530968	531039	10
50	10	11.531111	531183	531254	531326	531397	531469	531541	531612	531684	531756	04
19	0	11.531827	531899	531971	532043	532114	532186	532258	532330	532402	532473	50
10	10	11.532545	532617	532689	532761	532833	532904	532976	533048	533120	533192	40
20	10	11.533264	533336	533408	533480	533552	533624	533696	533768	533840	533912	30
30	10	11.533984	534056	534128	534200	534272	534344	534417	534489	534561	534633	20
40	10	11.534705	534777	534850	534922	534994	535066	535139	535211	535283	535355	10
50	10	11.535428	535500	535572	535645	535717	535789	535862	535934	536006	536079	04
Minutes	Seconds	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	Seconds
Co-tangent of 1 degree, or Tangent of 91 degrees.												Minutes

LOGARITHMIC TANGENTS.

		Tangent of 88 degrees, or Co-tangent of 178 degrees.											
Minutes	Seconds	0	1	2	3	4	5	6	7	8	9	Minutes	Seconds
20	0	11.536151	536224	536296	536369	536441	536514	536586	536659	536731	536804	20	0
10	10	11.536876	536949	537021	537094	537166	537239	537312	537384	537457	537530	10	40
20	20	11.537602	537675	537748	537820	537893	537966	538038	538111	538184	538257	20	20
30	30	11.538329	538402	538475	538548	538621	538694	538766	538839	538912	538985	30	30
40	40	11.539058	539131	539204	539277	539350	539423	539496	539569	539642	539715	40	40
50	50	11.539788	539861	539934	540007	540080	540153	540226	540299	540372	540445	50	50
21	0	11.540519	540592	540665	540738	540811	540884	540958	541031	541104	541177	21	0
10	10	11.541251	541324	541397	541471	541544	541617	541691	541764	541837	541911	10	10
20	20	11.541984	542058	542131	542204	542278	542351	542425	542498	542572	542645	20	20
30	30	11.542719	542792	542866	542939	543013	543087	543160	543234	543307	543381	30	30
40	40	11.543455	543528	543602	543676	543749	543823	543897	543970	544044	544118	40	40
50	50	11.544192	544266	544339	544413	544487	544561	544635	544708	544782	544856	50	50
22	0	11.544930	545004	545078	545152	545226	545300	545374	545448	545522	545596	22	0
10	10	11.545670	545744	545818	545892	545966	546040	546114	546188	546262	546336	10	10
20	20	11.546411	546485	546559	546633	546707	546782	546856	546930	547004	547078	20	20
30	30	11.547153	547227	547301	547376	547450	547524	547599	547673	547747	547822	30	30
40	40	11.547896	547971	548045	548119	548194	548268	548343	548417	548492	548566	40	40
50	50	11.548641	548715	548790	548865	548939	549014	549088	549163	549238	549312	50	50
23	0	11.549387	549461	549536	549611	549686	549760	549835	549910	549985	550059	23	0
10	10	11.550134	550209	550284	550358	550433	550508	550583	550658	550733	550808	10	10
20	20	11.550883	550958	551032	551107	551182	551257	551332	551407	551482	551557	20	20
30	30	11.551632	551707	551783	551858	551933	552008	552083	552158	552233	552308	30	30
40	40	11.552384	552459	552534	552609	552684	552760	552835	552910	552985	553061	40	40
50	50	11.553136	553211	553287	553362	553437	553513	553588	553663	553739	553814	50	50
24	0	11.553890	553965	554041	554116	554192	554267	554343	554418	554494	554569	24	0
10	10	11.554645	554720	554796	554871	554947	555023	555098	555174	555250	555325	10	10
20	20	11.555401	555477	555552	555628	555704	555780	555856	555931	556007	556083	20	20
30	30	11.556159	556235	556310	556386	556462	556538	556614	556690	556766	556842	30	30
40	40	11.556918	556994	557070	557146	557222	557298	557374	557450	557526	557602	40	40
50	50	11.557678	557754	557830	557906	557983	558059	558135	558211	558287	558363	50	50
25	0	11.558440	558516	558592	558668	558745	558821	558897	558974	559050	559126	25	0
10	10	11.559203	559279	559355	559432	559508	559585	559661	559738	559814	559890	10	10
20	20	11.559967	560043	560120	560197	560273	560350	560426	560503	560579	560656	20	20
30	30	11.560733	560809	560886	560963	561039	561116	561193	561269	561346	561423	30	30
40	40	11.561500	561576	561653	561730	561807	561884	561960	562037	562114	562191	40	40
50	50	11.562268	562345	562422	562499	562576	562653	562730	562807	562884	562961	50	50
26	0	11.563038	563115	563192	563269	563346	563423	563500	563577	563654	563732	26	0
10	10	11.563809	563886	563963	564040	564118	564195	564272	564349	564427	564504	10	10
20	20	11.564581	564658	564736	564813	564891	564968	565045	565123	565200	565278	20	20
30	30	11.565355	565433	565510	565588	565665	565743	565820	565898	565975	566053	30	30
40	40	11.566130	566208	566286	566363	566441	566518	566596	566674	566752	566829	40	40
50	50	11.566907	566985	567062	567140	567218	567296	567374	567451	567529	567607	50	50
27	0	11.567685	567763	567841	567919	567997	568074	568152	568230	568308	568386	27	0
10	10	11.568464	568542	568620	568698	568776	568855	568933	569011	569089	569167	10	10
20	20	11.569245	569323	569401	569480	569558	569636	569714	569792	569871	569949	20	20
30	30	11.570027	570106	570184	570262	570341	570419	570497	570576	570654	570732	30	30
40	40	11.570811	570889	570968	571046	571125	571203	571282	571360	571439	571517	40	40
50	50	11.571596	571674	571753	571832	571910	571989	572068	572146	572225	572304	50	50
28	0	11.572382	572461	572540	572619	572697	572776	572855	572934	573012	573091	28	0
10	10	11.573170	573249	573328	573407	573486	573565	573644	573723	573801	573880	10	10
20	20	11.573959	574038	574117	574197	574276	574355	574434	574513	574592	574671	20	20
30	30	11.574750	574829	574908	574988	575067	575146	575225	575305	575384	575463	30	30
40	40	11.575542	575622	575701	575780	575860	575939	576018	576098	576177	576257	40	40
50	50	11.576336	576415	576495	576574	576654	576733	576813	576892	576972	577051	50	50
29	0	11.577131	577211	577290	577370	577449	577529	577609	577688	577768	577848	29	0
10	10	11.577927	578007	578087	578167	578247	578326	578406	578486	578566	578646	10	10
20	20	11.578725	578805	578885	578965	579045	579125	579205	579285	579365	579445	20	20
30	30	11.579525	579605	579685	579765	579845	579925	580005	580085	580166	580246	30	30
40	40	11.580326	580406	580486	580566	580647	580727	580807	580887	580968	581048	40	40
50	50	11.581128	581209	581289	581369	581450	581530	581610	581691	581771	581852	50	50
Minutes	Seconds	10	9	8	7	6	5	4	3	2	1	Minutes	Seconds
Co-tangent of 1 degree, or Tangent of 91 degrees.													

LOGARITHMIC TANGENTS.

Tangent of 88 degrees, or Co-tangent of 178 degrees.										Seconds	Minutes
0'	1'	2'	3'	4'	5'	6'	7'	8'	9'		
11. 581932	582013	582093	582174	582254	582335	582415	582496	582576	582657	50	
11. 582737	582818	582899	582979	583060	583141	583221	583302	583383	583464	40	
11. 583544	583625	583706	583787	583867	583948	584029	584110	584191	584272	30	
11. 584353	584434	584515	584595	584676	584757	584838	584919	585000	585081	20	
11. 585163	585244	585325	585406	585487	585568	585649	585730	585811	585893	10	
11. 585974	586055	586136	586218	586299	586380	586461	586543	586624	586705	0 29	
11. 586787	586868	586950	587031	587112	587194	587275	587357	587438	587520	50	
11. 587601	587683	587764	587846	587927	588009	588091	588172	588254	588335	40	
11. 588417	588499	588581	588662	588744	588826	588907	588989	589071	589153	30	
11. 589355	589316	589398	589480	589562	589644	589726	589808	589890	589972	20	
11. 590054	590136	590218	590300	590382	590464	590546	590628	590710	590792	10	
11. 590874	590956	591038	591121	591203	591285	591367	591449	591532	591614	0 28	
11. 591696	591779	591861	591943	592026	592108	592190	592273	592355	592438	50	
11. 592520	592602	592685	592767	592850	592932	593015	593097	593180	593263	40	
11. 593345	593428	593510	593593	593676	593758	593841	593924	594006	594089	30	
11. 594172	594255	594338	594420	594503	594586	594669	594752	594835	594917	20	
11. 595000	595083	595166	595249	595332	595415	595498	595581	595664	595747	10	
11. 595874	595957	596040	596123	596206	596289	596372	596455	596538	596621	0 27	
11. 596766	596849	596932	597015	597098	597181	597264	597347	597430	597513	50	
11. 597695	597778	597861	597944	598027	598110	598193	598276	598359	598442	40	
11. 598533	598616	598699	598782	598865	598948	599031	599114	599197	599280	30	
11. 599416	599499	599582	599665	599748	599831	599914	599997	600080	600163	20	
11. 600244	600327	600410	600493	600576	600659	600742	600825	600908	600991	10	
11. 601174	601257	601340	601423	601506	601589	601672	601755	601838	601921	0 26	
11. 602185	602268	602351	602434	602517	602600	602683	602766	602849	602932	50	
11. 603145	603228	603311	603394	603477	603560	603643	603726	603809	603892	40	
11. 603953	604036	604119	604202	604285	604368	604451	604534	604617	604700	30	
11. 604760	604843	604926	605009	605092	605175	605258	605341	605424	605507	20	
11. 605560	605643	605726	605809	605892	605975	606058	606141	606224	606307	10	
11. 606390	606473	606556	606639	606722	606805	606888	606971	607054	607137	0 25	
11. 607199	607282	607365	607448	607531	607614	607697	607780	607863	607946	50	
11. 608089	608172	608255	608338	608421	608504	608587	608670	608753	608836	40	
11. 608979	609062	609145	609228	609311	609394	609477	609560	609643	609726	30	
11. 609820	609903	609986	610069	610152	610235	610318	610401	610484	610567	20	
11. 610657	610740	610823	610906	610989	611072	611155	611238	611321	611404	10	
11. 611497	611580	611663	611746	611829	611912	611995	612078	612161	612244	0 24	
11. 612328	612411	612494	612577	612660	612743	612826	612909	612992	613075	50	
11. 613158	613241	613324	613407	613490	613573	613656	613739	613822	613905	40	
11. 613988	614071	614154	614237	614320	614403	614486	614569	614652	614735	30	
11. 614818	614901	614984	615067	615150	615233	615316	615399	615482	615565	20	
11. 615648	615731	615814	615897	615980	616063	616146	616229	616312	616395	10	
11. 616478	616561	616644	616727	616810	616893	616976	617059	617142	617225	0 23	
11. 617309	617392	617475	617558	617641	617724	617807	617890	617973	618056	50	
11. 618139	618222	618305	618388	618471	618554	618637	618720	618803	618886	40	
11. 618969	619052	619135	619218	619301	619384	619467	619550	619633	619716	30	
11. 619799	619882	619965	620048	620131	620214	620297	620380	620463	620546	20	
11. 620629	620712	620795	620878	620961	621044	621127	621210	621293	621376	10	
11. 621459	621542	621625	621708	621791	621874	621957	622040	622123	622206	0 22	
11. 622289	622372	622455	622538	622621	622704	622787	622870	622953	623036	50	
11. 623119	623202	623285	623368	623451	623534	623617	623700	623783	623866	40	
11. 623949	624032	624115	624198	624281	624364	624447	624530	624613	624696	30	
11. 624779	624862	624945	625028	625111	625194	625277	625360	625443	625526	20	
11. 625609	625692	625775	625858	625941	626024	626107	626190	626273	626356	10	
11. 626439	626522	626605	626688	626771	626854	626937	627020	627103	627186	0 21	
11. 627269	627352	627435	627518	627601	627684	627767	627850	627933	628016	50	
11. 628099	628182	628265	628348	628431	628514	628597	628680	628763	628846	40	
11. 628929	629012	629095	629178	629261	629344	629427	629510	629593	629676	30	
11. 629759	629842	629925	630008	630091	630174	630257	630340	630423	630506	20	
11. 630589	630672	630755	630838	630921	631004	631087	631170	631253	631336	10	
11. 631419	631502	631585	631668	631751	631834	631917	632000	632083	632166	0 20	
11. 632249	632332	632415	632498	632581	632664	632747	632830	632913	632996		
10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	Seconds	Minutes
Co-tangent of 1 degree, or Tangent of 91 degrees.										Seconds	Minutes

LOGARITHMIC TANGENTS.

		Tangent of 88 degrees, or Co-tangent of 178 degrees.									
Minutes	Seconds	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'
40	0	11. 633105	633196	633286	633377	633468	633558	633649	633739	633830	6339
10	11. 634011	634102	634193	634284	634374	634465	634556	634647	634738	6348	6349
20	11. 634919	635010	635101	635192	635283	635374	635465	635556	635647	6357	6358
30	11. 635829	635920	636011	636103	636194	636285	636376	636467	636559	6366	6367
40	11. 636741	636832	636924	637015	637106	637198	637289	637380	637472	6375	6376
50	11. 637655	637746	637838	637929	638021	638112	638204	638295	638387	6384	6385
41	0	11. 638570	638662	638754	638845	638937	639029	639121	639212	639304	6393
10	11. 639488	639580	639672	639763	639855	639947	640039	640131	640223	6403	6404
20	11. 640407	640499	640591	640683	640776	640868	640960	641052	641144	6412	6413
30	11. 641329	641421	641513	641605	641698	641790	641882	641975	642067	6421	6422
40	11. 642252	642344	642437	642529	642622	642714	642807	642900	642992	6430	6431
50	11. 643177	643270	643363	643455	643548	643641	643734	643826	643919	6440	6441
42	0	11. 644105	644198	644290	644383	644476	644569	644662	644755	644848	6449
10	11. 645034	645127	645220	645313	645406	645499	645593	645686	645779	6458	6459
20	11. 645905	646009	646112	646215	646318	646422	646525	646628	646731	6468	6469
30	11. 646899	646992	647085	647178	647272	647366	647459	647553	647647	6477	6478
40	11. 647834	647927	648021	648115	648209	648302	648396	648490	648584	6486	6487
50	11. 648771	648865	648959	649053	649147	649241	649335	649428	649522	6496	6497
43	0	11. 649710	649805	649899	649993	650087	650181	650275	650369	650463	6505
10	11. 650652	650746	650840	650935	651029	651123	651218	651312	651406	6515	6516
20	11. 651595	651690	651784	651879	651973	652068	652162	652257	652351	6524	6525
30	11. 652541	652635	652730	652825	652919	653014	653109	653204	653299	6533	6534
40	11. 653488	653583	653678	653773	653868	653963	654058	654153	654248	6543	6544
50	11. 654438	654533	654628	654723	654818	654913	655009	655104	655199	6552	6553
44	0	11. 655389	655485	655580	655675	655771	655866	655961	656057	656152	6562
10	11. 656343	656439	656534	656630	656725	656821	656916	657012	657108	6572	6573
20	11. 657299	657395	657491	657586	657682	657778	657874	657969	658065	6581	6582
30	11. 658257	658353	658449	658545	658641	658737	658833	658929	659025	6591	6592
40	11. 659217	659313	659409	659506	659602	659698	659794	659890	659987	6600	6601
50	11. 660179	660276	660372	660468	660565	660661	660758	660854	660951	6610	6611
45	0	11. 661144	661240	661337	661433	661530	661627	661723	661820	661917	6620
10	11. 662110	662207	662304	662401	662497	662594	662691	662788	662885	6629	6630
20	11. 663079	663176	663273	663370	663467	663564	663661	663758	663855	6639	6640
30	11. 664050	664147	664244	664341	664438	664536	664633	664730	664828	6649	6650
40	11. 665023	665120	665217	665315	665412	665510	665607	665705	665802	6659	6660
50	11. 665998	666095	666193	666291	666388	666486	666584	666682	666779	6668	6669
46	0	11. 666975	667073	667171	667269	667367	667465	667562	667660	667758	6678
10	11. 667955	668053	668151	668249	668347	668445	668543	668642	668740	6688	6689
20	11. 668936	669035	669133	669231	669330	669428	669526	669625	669723	6698	6699
30	11. 669920	670019	670117	670216	670315	670413	670512	670610	670709	6708	6709
40	11. 670907	671005	671104	671203	671302	671400	671499	671598	671697	6717	6718
50	11. 671895	671994	672093	672192	672291	672390	672489	672588	672687	6727	6728
47	0	11. 672886	672985	673084	673183	673283	673382	673481	673581	673680	6737
10	11. 673879	673978	674078	674177	674276	674376	674476	674575	674675	6747	6748
20	11. 674874	674974	675073	675173	675273	675372	675472	675572	675672	6757	6758
30	11. 675871	675971	676071	676171	676271	676371	676471	676571	676671	6767	6768
40	11. 676871	676971	677071	677172	677272	677372	677472	677572	677673	6777	6778
50	11. 677873	677974	678074	678174	678275	678375	678476	678576	678677	6787	6788
48	0	11. 678878	678978	679079	679180	679280	679381	679482	679582	679683	6797
10	11. 679885	679985	680086	680187	680288	680389	680490	680591	680692	6807	6808
20	11. 680894	680995	681096	681197	681298	681399	681500	681601	681703	6818	6819
30	11. 681905	682006	682108	682209	682310	682412	682513	682615	682716	6828	6829
40	11. 682919	683020	683122	683224	683325	683427	683528	683630	683732	6838	6839
50	11. 683935	684037	684139	684240	684342	684444	684546	684648	684750	6848	6849
49	0	11. 684954	685056	685158	685260	685362	685464	685566	685668	685770	6858
10	11. 685975	686077	686179	686281	686384	686486	686588	686691	686793	6868	6869
20	11. 686998	687101	687203	687306	687408	687511	687613	687716	687818	6879	6880
30	11. 688024	688127	688229	688332	688435	688538	688640	688743	688846	6889	6890
40	11. 689052	689155	689258	689361	689464	689567	689670	689773	689876	6899	6900
50	11. 690083	690186	690289	690392	690496	690599	690702	690806	690909	6910	6911
Minutes	Seconds	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'
		Co-tangent of 1 degree, or Tangent of 91 degrees.									

LOGARITHMIC TANGENTS.

Tangent of 88 degrees, or Co-tangent of 178 degrees.										Seconds Minute
0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	
11. 691116	691219	691323	691426	691530	691633	691737	691840	691944	692048	50
11. 692151	692255	692359	692462	692566	692670	692774	692878	692982	693085	40
11. 693189	693293	693397	693501	693605	693709	693813	693917	694022	694126	30
11. 694230	694334	694438	694542	694647	694751	694855	694960	695064	695168	20
11. 695273	695377	695482	695586	695691	695795	695900	696004	696109	696214	10
11. 696318	696423	696528	696633	696737	696842	696947	697052	697157	697261	0 9
11. 697366	697471	697576	697681	697786	697891	697996	698102	698207	698312	50
11. 698417	698522	698627	698733	698838	698943	699049	699154	699259	699365	40
11. 699470	699576	699681	699787	699892	699998	700103	700209	700314	700420	30
11. 700526	700631	700737	700843	700949	701055	701160	701266	701372	701478	20
11. 701584	701690	701796	701902	702008	702114	702220	702326	702432	702539	10
11. 702645	702751	702857	702964	703070	703176	703283	703389	703495	703602	0 8
11. 703708	703815	703921	704028	704134	704241	704348	704454	704561	704668	50
11. 704774	704881	704988	705095	705201	705308	705415	705522	705629	705736	40
11. 705843	705950	706057	706164	706271	706378	706485	706593	706700	706807	30
11. 706914	707022	707129	707236	707343	707451	707558	707666	707773	707881	20
11. 707988	708096	708203	708311	708418	708526	708634	708742	708849	708957	10
11. 709065	709173	709280	709388	709496	709604	709712	709820	709928	710036	0 7
11. 710144	710252	710360	710468	710576	710685	710793	710901	711009	711118	50
11. 711226	711334	711443	711551	711660	711768	711876	711985	712093	712202	40
11. 712311	712419	712528	712637	712745	712854	712963	713072	713180	713289	30
11. 713398	713507	713616	713725	713834	713943	714052	714161	714270	714379	20
11. 714488	714597	714706	714816	714925	715034	715143	715253	715362	715472	10
11. 715581	715690	715800	715909	716019	716128	716238	716348	716457	716567	0 6
11. 716677	716786	716896	717006	717116	717225	717335	717445	717555	717665	50
11. 717775	717885	717995	718105	718215	718325	718435	718545	718656	718766	40
11. 718876	718986	719097	719207	719317	719428	719538	719648	719759	719869	30
11. 719980	720091	720201	720312	720422	720533	720644	720754	720865	720976	20
11. 721087	721198	721308	721419	721530	721641	721752	721863	721974	722085	10
11. 722196	722307	722419	722530	722641	722752	722863	722975	723086	723197	0 5
11. 723309	723420	723532	723643	723754	723866	723978	724089	724201	724312	50
11. 724424	724536	724647	724759	724871	724983	725095	725206	725318	725430	40
11. 725542	725654	725766	725878	725990	726102	726214	726327	726439	726551	30
11. 726663	726775	726888	727000	727112	727225	727337	727450	727562	727675	20
11. 727787	727900	728012	728125	728237	728350	728463	728576	728688	728801	10
11. 728914	729027	729140	729253	729365	729478	729591	729704	729817	729931	0 4
11. 730044	730157	730270	730383	730496	730610	730723	730836	730950	731063	50
11. 731176	731290	731403	731517	731630	731744	731857	731971	732085	732198	40
11. 732312	732426	732540	732653	732767	732881	732995	733109	733223	733337	30
11. 733451	733565	733679	733793	733907	734021	734135	734250	734364	734478	20
11. 734592	734707	734821	734935	735050	735164	735279	735393	735508	735622	10
11. 735737	735852	735966	736081	736196	736310	736425	736540	736655	736770	0 3
11. 736885	737000	737115	737230	737345	737460	737575	737690	737805	737920	50
11. 738035	738151	738266	738381	738497	738612	738727	738843	738958	739074	40
11. 739189	739305	739420	739536	739651	739767	739883	739999	740114	740230	30
11. 740346	740462	740578	740694	740810	740926	741042	741158	741274	741390	20
11. 741506	741622	741738	741854	741971	742087	742203	742320	742436	742552	10
11. 742669	742785	742902	743018	743135	743252	743368	743485	743602	743718	0 2
11. 743835	743952	744069	744186	744302	744419	744536	744653	744770	744887	50
11. 745004	745121	745239	745356	745473	745590	745707	745825	745942	746059	40
11. 746177	746294	746412	746529	746647	746764	746882	746999	747117	747235	30
11. 747352	747470	747588	747706	747824	747941	748059	748177	748295	748413	20
11. 748531	748649	748767	748885	749004	749122	749240	749358	749477	749595	10
11. 749713	749832	749950	750068	750187	750305	750424	750543	750661	750780	0 1
11. 750898	751017	751136	751255	751373	751492	751611	751730	751849	751968	50
11. 752087	752206	752325	752444	752563	752682	752802	752921	753040	753159	40
11. 753279	753398	753517	753637	753756	753876	753995	754115	754234	754354	30
11. 754474	754593	754713	754833	754953	755072	755192	755312	755432	755552	20
11. 755672	755792	755912	756032	756152	756272	756392	756513	756633	756753	10
11. 756874	756994	757114	757235	757355	757476	757596	757717	757837	757958	0 0
10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	
Co-tangent of 1 degree, or Tangent of 91 degrees.										Seconds Minute

LOGARITHMIC TANGENTS.

Minutes Seconds	Tangent of 89 degrees, or Co-tangent of 179 degrees.										Minutes Seconds
	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	
0	11.758078	758199	758320	758441	758561	758682	758803	758924	759045	759166	10
10	11.759287	759408	759529	759650	759771	759892	760013	760135	760256	760377	20
20	11.760498	760620	760741	760863	760984	761106	761227	761349	761470	761592	30
30	11.761713	761835	761957	762079	762200	762322	762444	762566	762688	762810	40
40	11.762932	763054	763176	763298	763420	763542	763665	763787	763909	764032	50
50	11.764154	764276	764399	764521	764644	764766	764889	765011	765134	765256	60
1	11.765379	765502	765625	765747	765870	765993	766116	766239	766362	766485	70
10	11.766608	766731	766854	766977	767100	767224	767347	767470	767594	767717	80
20	11.767840	767964	768087	768211	768334	768458	768581	768705	768829	768952	90
30	11.769076	769200	769324	769447	769571	769695	769819	769943	770067	770191	10
40	11.770315	770439	770564	770688	770812	770936	771061	771185	771309	771434	20
50	11.771558	771683	771807	771932	772056	772181	772306	772430	772555	772680	30
2	11.772805	772929	773054	773179	773304	773429	773554	773679	773804	773929	40
10	11.774055	774180	774305	774430	774556	774681	774806	774932	775057	775183	50
20	11.775308	775434	775559	775685	775811	775936	776062	776188	776314	776440	60
30	11.776565	776691	776817	776943	777069	777195	777322	777448	777574	777700	70
40	11.777826	777953	778079	778205	778332	778458	778585	778711	778838	778964	80
50	11.779091	779218	779344	779471	779598	779725	779852	779978	780105	780232	90
3	11.780359	780486	780613	780740	780868	780995	781122	781249	781376	781504	10
10	11.781631	781759	781886	782013	782141	782269	782396	782524	782651	782779	20
20	11.782907	783035	783162	783290	783418	783546	783674	783802	783930	784058	30
30	11.784186	784314	784443	784571	784699	784827	784956	785084	785213	785341	40
40	11.785470	785598	785727	785855	785984	786113	786241	786370	786499	786628	50
50	11.786757	786885	787014	787143	787272	787401	787531	787660	787789	787918	60
4	11.788047	788177	788306	788435	788565	788694	788824	788953	789083	789212	70
10	11.789342	789472	789601	789731	789861	789991	790121	790251	790381	790511	80
20	11.790641	790771	790901	791031	791161	791291	791422	791552	791682	791813	90
30	11.791943	792074	792204	792335	792465	792596	792726	792857	792988	793119	10
40	11.793249	793380	793511	793642	793773	793904	794035	794166	794297	794429	20
50	11.794560	794691	794822	794954	795085	795216	795348	795479	795611	795742	30
5	11.795874	796006	796137	796269	796401	796533	796665	796796	796928	797060	40
10	11.797192	797324	797456	797589	797721	797853	797985	798118	798250	798382	50
20	11.798515	798647	798780	798912	799045	799177	799310	799443	799575	799708	60
30	11.799841	799974	800107	800240	800373	800506	800639	800772	800905	801038	70
40	11.801171	801305	801438	801571	801705	801838	801972	802105	802239	802372	80
50	11.802506	802639	802773	802907	803041	803175	803308	803442	803576	803710	90
6	11.803844	803978	804113	804247	804381	804515	804649	804784	804918	805053	10
10	11.805187	805322	805456	805591	805725	805860	805995	806129	806264	806399	20
20	11.806534	806669	806804	806939	807074	807209	807344	807479	807614	807750	30
30	11.807885	808020	808156	808291	808427	808562	808698	808833	808969	809105	40
40	11.809240	809376	809512	809648	809784	809919	810055	810191	810328	810464	50
50	11.810600	810736	810872	811008	811145	811281	811418	811554	811690	811827	60
7	11.811964	812100	812237	812374	812510	812647	812784	812921	813058	813195	70
10	11.813332	813469	813606	813743	813880	814017	814155	814292	814429	814567	80
20	11.814704	814841	814979	815117	815254	815392	815530	815667	815805	815943	90
30	11.816081	816219	816357	816495	816633	816771	816909	817047	817185	817324	10
40	11.817462	817600	817739	817877	818016	818154	818293	818431	818570	818709	20
50	11.818847	818986	819125	819264	819403	819542	819681	819820	819959	820098	30
8	11.820237	820377	820516	820655	820795	820934	821073	821213	821353	821493	40
10	11.821632	821771	821911	822051	822191	822331	822471	822611	822751	822891	50
20	11.823031	823171	823311	823451	823592	823732	823872	824013	824153	824294	60
30	11.824434	824575	824715	824856	824997	825138	825278	825419	825560	825701	70
40	11.825842	825983	826124	826265	826407	826548	826689	826830	826972	827113	80
50	11.827255	827396	827538	827679	827821	827963	828104	828246	828388	828530	90
9	11.828672	828814	828956	829098	829240	829382	829524	829667	829809	829951	10
10	11.830094	830236	830379	830521	830664	830806	830949	831092	831234	831377	20
20	11.831520	831663	831806	831949	832092	832235	832378	832521	832665	832808	30
30	11.832951	833095	833238	833381	833525	833669	833812	833956	834100	834243	40
40	11.834387	834531	834675	834819	834963	835107	835251	835395	835539	835683	50
50	11.835828	835972	836116	836261	836405	836550	836694	836839	836984	837128	60
Minutes Seconds	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	
Co-tangent of 0 degree, or Tangent of 90 degrees.											

LOGARITHMIC TANGENTS.

Tangent of 89 degrees, or Co-tangent of 179 degrees.										Seconds Minutes
0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	
11. 837273	837418	837563	837708	837853	837998	838143	838288	838433	838578	50
11. 838723	838869	839014	839160	839305	839450	839596	839742	839887	840033	40
11. 840179	840324	840470	840616	840762	840908	841054	841200	841346	841492	30
11. 841639	841785	841931	842078	842224	842370	842517	842664	842810	842957	20
11. 843104	843250	843397	843544	843691	843838	843985	844132	844279	844426	10
11. 844573	844721	844868	845015	845163	845310	845458	845605	845753	845901	0 49
11. 846048	846196	846344	846492	846640	846788	846936	847084	847232	847380	50
11. 847528	847677	847825	847973	848122	848270	848419	848567	848716	848864	40
11. 849013	849162	849311	849460	849609	849758	849907	850056	850205	850354	30
11. 850503	850653	850802	850951	851101	851250	851400	851549	851699	851849	20
11. 851998	852148	852298	852448	852598	852748	852898	853048	853198	853349	10
11. 853499	853649	853800	853950	854100	854251	854402	854552	854703	854854	0 48
11. 855004	855155	855306	855457	855608	855759	855910	856061	856213	856364	50
11. 856515	856667	856818	856969	857121	857273	857424	857576	857728	857879	40
11. 858031	858183	858335	858487	858639	858791	858943	859096	859248	859400	30
11. 859553	859705	859857	860010	860163	860315	860468	860621	860774	860926	20
11. 861079	861232	861385	861538	861691	861845	861998	862151	862305	862458	10
11. 862611	862765	862918	863072	863226	863379	863533	863687	863841	863995	0 47
11. 864149	864303	864457	864611	864765	864920	865074	865228	865383	865537	50
11. 865646	865800	865954	866108	866262	866416	866570	866725	866879	867033	40
11. 867240	867396	867551	867706	867861	868017	868172	868328	868483	868639	30
11. 868794	868950	869106	869262	869418	869573	869729	869886	870042	870198	20
11. 870354	870510	870667	870823	870979	871136	871292	871449	871606	871762	10
11. 871919	872076	872233	872390	872547	872704	872861	873018	873175	873333	0 46
11. 873490	873647	873805	873962	874120	874278	874435	874593	874751	874909	50
11. 875067	875225	875383	875541	875699	875857	876015	876174	876332	876490	40
11. 876649	876808	876966	877125	877284	877442	877601	877760	877919	878078	30
11. 878237	878396	878555	878715	878874	879033	879193	879352	879512	879671	20
11. 879831	879991	880150	880310	880470	880630	880790	880950	881110	881271	10
11. 881431	881591	881751	881912	882072	882233	882394	882554	882715	882876	0 45
11. 883037	883197	883358	883519	883680	883842	884003	884164	884325	884487	50
11. 884648	884810	884971	885133	885295	885456	885618	885780	885942	886104	40
11. 886266	886428	886590	886752	886915	887077	887239	887402	887564	887727	30
11. 887890	888052	888215	888378	888541	888704	888867	889030	889193	889356	20
11. 889519	889683	889846	890010	890173	890337	890500	890664	890828	890991	10
11. 891155	891319	891483	891647	891811	891976	892140	892304	892469	892633	0 44
11. 892797	892962	893127	893291	893456	893621	893786	893951	894116	894281	50
11. 894446	894611	894776	894942	895107	895272	895438	895603	895769	895935	40
11. 896100	896266	896432	896598	896764	896930	897096	897262	897429	897595	30
11. 897761	897928	898094	898261	898428	898594	898761	898928	899095	899262	20
11. 899429	899596	899763	899930	900097	900265	900432	900600	900767	900935	10
11. 901102	901270	901438	901606	901774	901942	902110	902278	902446	902614	0 43
11. 902783	902951	903120	903288	903457	903625	903794	903963	904132	904301	50
11. 904469	904639	904808	904977	905146	905315	905485	905654	905824	905993	40
11. 906163	906333	906502	906672	906842	907012	907182	907352	907522	907692	30
11. 907863	908033	908204	908374	908545	908715	908886	909057	909228	909398	20
11. 909599	909740	909912	910083	910254	910425	910597	910768	910940	911111	10
11. 911283	911454	911626	911798	911970	912142	912314	912486	912658	912831	0 42
11. 913003	913175	913348	913520	913693	913866	914038	914211	914384	914557	50
11. 914730	914903	915076	915249	915423	915596	915769	915943	916116	916290	40
11. 916464	916638	916811	916985	917159	917333	917507	917682	917856	918030	30
11. 918205	918379	918554	918728	918903	919078	919252	919427	919602	919777	20
11. 919952	920128	920303	920478	920654	920829	921005	921180	921356	921532	10
11. 921707	921883	922059	922235	922411	922587	922764	922940	923116	923293	0 41
11. 923469	923646	923823	923999	924176	924353	924530	924707	924884	925061	50
11. 925239	925416	925593	925771	925948	926126	926304	926481	926659	926837	40
11. 927015	927193	927371	927549	927728	927906	928084	928263	928441	928620	30
11. 928799	928977	929156	929335	929514	929693	929872	930052	930231	930410	20
11. 930590	930769	930949	931129	931308	931488	931668	931848	932028	932208	10
11. 932388	932569	932749	932929	933110	933290	933471	933652	933832	934013	0 40
10"	9"	8"	7"	6"	5"	4"	3"	2"	1"	Seconds Minutes
Co-tangent of 0 degree, or Tangent of 90 degrees.										

LOGARITHMIC TANGENTS.

Minutes Seconds		Tangent of 89 degrees, or Co-tangent of 179 degrees.										Minutes Seconds
		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	
20	0	11.934194	934375	934556	934737	934919	935100	935281	935463	935644	935826	50
	10	11.935008	936190	936371	936553	936735	936917	937099	937282	937464	937646	40
	20	11.935829	938011	938194	938377	938559	938742	938925	939108	939291	939474	30
	30	11.936658	939841	940024	940208	940391	940575	940759	940942	941126	941310	20
	40	11.941494	941678	941862	942047	942231	942415	942600	942784	942969	943154	10
	50	11.943338	943523	943708	943893	944078	944264	944449	944634	944820	945005	00
21	0	11.945191	945376	945562	945748	945934	946120	946306	946492	946678	946864	50
	10	11.947051	947237	947424	947610	947797	947984	948171	948358	948545	948732	40
	20	11.948919	949106	949293	949481	949668	949856	950044	950231	950419	950607	30
	30	11.950795	950983	951171	951359	951548	951736	951925	952113	952302	952490	20
	40	11.952679	952868	953057	953246	953435	953624	953814	954003	954193	954382	10
	50	11.954572	954761	954951	955141	955331	955521	955711	955901	956092	956282	00
22	0	11.956473	956663	956854	957044	957235	957426	957617	957808	957999	958190	50
	10	11.958382	958573	958765	958956	959148	959339	959531	959723	959915	960107	40
	20	11.960299	960491	960684	960876	961069	961261	961454	961647	961839	962032	30
	30	11.962225	962418	962612	962805	962998	963192	963385	963579	963772	963966	20
	40	11.964160	964354	964548	964742	964936	965131	965325	965519	965714	965909	10
	50	11.966103	966298	966493	966688	966883	967078	967273	967469	967664	967860	00
23	0	11.968055	968251	968447	968643	968839	969035	969231	969427	969623	969820	50
	10	11.970016	970213	970409	970606	970803	971000	971197	971394	971591	971789	40
	20	11.971986	972183	972381	972579	972776	972974	973172	973370	973568	973766	30
	30	11.973905	974163	974361	974560	974759	974957	975156	975355	975554	975753	20
	40	11.975952	976152	976351	976551	976750	976950	977149	977349	977549	977749	10
	50	11.977949	978150	978350	978550	978751	978951	979152	979353	979553	979754	00
24	0	11.979955	980157	980358	980559	980761	980962	981164	981365	981567	981769	50
	10	11.981971	982173	982375	982577	982780	982982	983185	983387	983590	983793	40
	20	11.983996	984199	984402	984605	984808	985012	985215	985419	985622	985826	30
	30	11.986030	986234	986438	986642	986846	987051	987255	987460	987664	987869	20
	40	11.988074	988279	988484	988689	988894	989099	989305	989510	989716	989922	10
	50	11.990127	990333	990539	990745	990952	991158	991364	991571	991777	991984	00
25	0	11.992191	992398	992605	992812	993019	993226	993433	993641	993849	994056	50
	10	11.994264	994472	994680	994888	995096	995304	995513	995721	995930	996138	40
	20	11.996347	996556	996765	996974	997183	997392	997602	997811	998021	998230	30
	30	11.998440	998650	998860	999070	999280	999491	999701	999911	100022	100033	20
	40	12.000543	000754	000965	001176	001388	001599	001810	002022	002233	002445	10
	50	12.002657	002869	003081	003293	003505	003718	003930	004143	004355	004568	00
26	0	12.004781	004994	005207	005420	005633	005847	006060	006274	006487	006701	50
	10	12.006915	007129	007343	007557	007772	007986	008201	008415	008630	008845	40
	20	12.009060	009275	009490	009705	009921	010136	010352	010568	010783	010999	30
	30	12.011215	011431	011648	011864	012080	012297	012514	012730	012947	013164	20
	40	12.013381	013599	013816	014033	014251	014469	014686	014904	015122	015340	10
	50	12.015559	015777	015995	016214	016432	016651	016870	017089	017308	017527	00
27	0	12.017747	017966	018185	018405	018625	018845	019065	019285	019505	019725	50
	10	12.019946	020166	020387	020608	020828	021049	021270	021492	021713	021934	40
	20	12.022156	022378	022599	022821	023043	023265	023488	023710	023932	024155	30
	30	12.024378	024600	024823	025046	025269	025493	025716	025939	026163	026387	20
	40	12.026611	026834	027059	027282	027507	027731	027956	028181	028405	028630	10
	50	12.028855	029080	029305	029531	029756	029982	030207	030433	030659	030885	00
28	0	12.031111	031338	031564	031790	032017	032244	032471	032698	032925	033152	50
	10	12.033379	033607	033834	034062	034290	034518	034746	034974	035202	035431	40
	20	12.035659	035888	036117	036346	036575	036804	037033	037262	037492	037721	30
	30	12.037951	038181	038411	038641	038871	039102	039332	039563	039793	040024	20
	40	12.040255	040486	040717	040949	041180	041412	041644	041875	042107	042339	10
	50	12.042572	042804	043036	043269	043502	043734	043967	044200	044434	044667	00
29	0	12.044900	045134	045368	045601	045835	046069	046304	046538	046772	047007	50
	10	12.047242	047477	047711	047947	048182	048417	048653	048888	049124	049360	40
	20	12.049596	049832	050068	050304	050541	050778	051014	051251	051488	051725	30
	30	12.051963	052200	052438	052675	052913	053151	053389	053627	053865	054104	20
	40	12.054342	054581	054820	055059	055298	055537	055777	056016	056256	056495	10
	50	12.056735	056975	057216	057456	057696	057937	058177	058418	058659	058900	00
		10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	
Co-tangent of 0 degree, or Tangent of 90 degrees.												

Tangent of 89 degrees, or Co-tangent of 179 degrees.

Tangent of 89 degrees, or Co-tangent of 179 degrees.										Seconds	Minutes
1"	2"	3"	4"	5"	6"	7"	8"	9"			
059383	059624	059866	060108	060350	060592	060834	061076	061319	50		
061804	062047	062290	062533	062776	063019	063263	063507	063750	40		
064238	064483	064727	064971	065216	065461	065706	065951	066196	30		
066687	066932	067178	067424	067670	067916	068162	068409	068655	20		
069149	069396	069643	069890	070137	070385	070633	070881	071129	10		
071625	071873	072122	072370	072619	072868	073117	073367	073616	0	29	
074115	074365	074615	074865	075115	075366	075616	075867	076118	50		
076620	076871	077123	077374	077626	077878	078130	078382	078634	40		
079139	079392	079645	079898	080151	080404	080658	080911	081165	30		
081673	081927	082182	082436	082691	082946	083201	083456	083711	20		
084222	084478	084733	084989	085246	085502	085758	086015	086272	10		
086786	087043	087300	087558	087816	088073	088331	088589	088848	0	28	
089365	089624	089882	090142	090401	090660	090920	091179	091439	50		
091959	092220	092480	092741	093001	093262	093523	093785	094046	40		
094569	094831	095093	095355	095618	095880	096143	096406	096669	30		
097195	097459	097722	097986	098250	098514	098778	099043	099307	20		
099837	100102	100367	100633	100898	101164	101430	101696	101962	10		
102495	102762	103029	103296	103563	103830	104098	104365	104633	0	27	
105169	105438	105706	105975	106244	106513	106782	107051	107321	50		
107860	108130	108400	108671	108941	109212	109483	109754	110025	40		
110568	110840	111111	111384	111656	111928	112201	112473	112746	30		
113293	113566	113840	114113	114387	114661	114936	115210	115485	20		
116034	116310	116585	116860	117136	117412	117688	117964	118241	10		
118794	119071	119348	119625	119902	120180	120458	120736	121014	0	26	
121571	121849	122128	122407	122686	122966	123245	123525	123805	50		
124366	124646	124927	125207	125488	125770	126051	126333	126614	40		
127178	127461	127743	128026	128309	128592	128875	129158	129442	30		
130010	130294	130578	130863	131147	131432	131717	132003	132288	20		
132859	133145	133432	133718	134005	134291	134578	134866	135153	10		
135728	136016	136304	136592	136881	137170	137458	137747	138037	0	25	
138616	138906	139196	139486	139776	140067	140358	140649	140940	50		
141523	141815	142107	142399	142691	142984	143276	143569	143863	40		
144449	144743	145037	145331	145626	145920	146215	146510	146805	30		
147396	147692	147988	148284	148580	148877	149173	149470	149768	20		
150363	150660	150958	151256	151555	151853	152152	152451	152751	10		
153350	153649	153949	154250	154550	154851	155152	155453	155754	0	24	
156357	156659	156961	157264	157566	157869	158172	158475	158778	50		
159386	159690	159994	160299	160603	160908	161213	161519	161824	40		
162436	162742	163048	163355	163662	163969	164276	164584	164891	30		
165507	165816	166124	166433	166742	167051	167361	167670	167980	20		
168601	168911	169222	169533	169844	170156	170467	170779	171091	10		
171716	172029	172342	172655	172969	173282	173596	173911	174225	0	23	
174854	175169	175485	175800	176116	176432	176748	177065	177381	50		
178015	178333	178650	178968	179286	179604	179923	180242	180561	40		
181199	181519	181839	182159	182480	182800	183121	183442	183764	30		
184407	184729	185051	185374	185697	186020	186343	186666	186990	20		
187638	187963	188288	188613	188938	189263	189589	189915	190241	10		
190894	191221	191548	191876	192203	192531	192859	193188	193516	0	22	
194174	194504	194833	195163	195493	195824	196154	196485	196817	50		
197480	197812	198144	198476	198809	199142	199475	199808	200142	40		
200810	201145	201479	201814	202150	202485	202821	203157	203493	30		
204167	204504	204841	205178	205516	205854	206193	206531	206870	20		
207549	207889	208229	208569	208909	209250	209591	209932	210274	10		
210958	211300	211643	211986	212329	212673	213016	213360	213705	0	21	
214394	214739	215084	215430	215776	216122	216469	216815	217162	50		
217857	218205	218553	218902	219250	219599	219949	220298	220648	40		
221349	221699	222050	222401	222753	223105	223457	223809	224162	30		
224868	225222	225575	225929	226284	226639	226994	227349	227704	20		
228416	228773	229129	229486	229844	230201	230559	230917	231276	10		
231994	232353	232713	233073	233433	233794	234155	234516	234877	0	20	
9"	8"	7"	6"	5"	4"	3"	2"	1"	Seconds	Minutes	
Co-tangent of 0 degree, or Tangent of 90 degrees.											

LOGARITHMIC TANGENTS.

		Tangent of 89 degrees, or Co-tangent of 179 degrees.									
Minutes	Seconds	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'
		12. 235239	235601	235963	236326	236689	237052	237416	237780	238144	238508
40	0	12. 235239	235601	235963	236326	236689	237052	237416	237780	238144	238508
10	10	12. 235873	236238	236604	236970	240336	240702	241069	241436	241803	242170
20	20	12. 242538	242907	243275	243644	244013	244383	244752	245122	245493	245864
30	30	12. 246235	246606	246978	247350	247722	248095	248467	248841	249214	249588
40	40	12. 249963	250337	250712	251087	251463	251839	252215	252591	252968	253345
50	50	12. 253723	254101	254479	254857	255236	255615	255995	256374	256755	257136
41	0	12. 257516	257897	258278	258660	259042	259425	259808	260191	260574	260958
10	10	12. 261342	261727	262112	262497	262882	263268	263654	264041	264428	264815
20	20	12. 265203	265591	265979	266368	266757	267146	267536	267926	268316	268707
30	30	12. 269098	269489	269881	270273	270666	271059	271452	271845	272239	272632
40	40	12. 273028	273423	273819	274214	274610	275007	275404	275801	276198	276595
50	50	12. 276995	277393	277792	278192	278591	278991	279392	279793	280194	280595
42	0	12. 280997	281400	281802	282205	282609	283013	283417	283821	284226	284630
10	10	12. 285037	285443	285850	286257	286664	287072	287480	287888	288297	288705
20	20	12. 289115	289525	289936	290346	290757	291169	291581	291993	292406	292818
30	30	12. 293232	293646	294060	294475	294890	295305	295721	296137	296554	296970
40	40	12. 297388	297806	298224	298643	299062	299481	299901	300321	300742	301162
50	50	12. 301584	302006	302428	302851	303274	303698	304122	304546	304971	305395
43	0	12. 305821	306247	306674	307101	307528	307956	308384	308812	309241	309669
10	10	12. 310100	310530	310961	311392	311824	312256	312688	313121	313554	313987
20	20	12. 314422	314856	315291	315727	316162	316599	317035	317472	317910	318347
30	30	12. 318787	319225	319665	320105	320545	320986	321427	321868	322310	322751
40	40	12. 323196	323639	324083	324527	324972	325417	325863	326309	326756	327202
50	50	12. 327650	328098	328547	328995	329445	329895	330345	330796	331247	331697
44	0	12. 332151	332603	333056	333510	333964	334419	334874	335329	335785	336240
10	10	12. 336698	337156	337614	338072	338531	338990	339450	339910	340371	340831
20	20	12. 341294	341756	342219	342683	343146	343610	344075	344540	345006	345471
30	30	12. 345939	346406	346874	347342	347811	348280	348750	349220	349691	350161
40	40	12. 350634	351107	351580	352053	352527	353001	353476	353951	354427	354902
50	50	12. 355381	355858	356336	356815	357294	357774	358254	358735	359216	359697
45	0	12. 360180	360663	361146	361630	362114	362599	363085	363571	364058	364544
10	10	12. 365032	365521	366009	366499	366989	367479	367970	368462	368954	369446
20	20	12. 369940	370434	370928	371423	371918	372414	372911	373408	373906	374403
30	30	12. 374903	375403	375903	376403	376905	377406	377909	378412	378915	379418
40	40	12. 379924	380429	380935	381442	381949	382456	382965	383472	383983	384491
50	50	12. 385004	385515	386027	386539	387052	387566	388080	388595	389111	389626
46	0	12. 390143	390661	391179	391697	392216	392736	393257	393778	394299	394820
10	10	12. 395345	395868	396392	396917	397443	397969	398496	399023	399551	400078
20	20	12. 400609	401139	401670	402201	402733	403265	403798	404332	404867	405402
30	30	12. 405938	406474	407012	407549	408088	408627	409167	409707	410249	410791
40	40	12. 411333	411876	412420	412965	413510	414056	414602	415150	415698	416246
50	50	12. 416796	417346	417897	418448	419000	419553	420107	420661	421216	421771
47	0	12. 422328	422886	423443	424002	424561	425121	425682	426244	426806	427368
10	10	12. 427932	428497	429062	429628	430194	430762	431330	431899	432468	433037
20	20	12. 433610	434181	434754	435327	435901	436476	437052	437628	438205	438782
30	30	12. 439362	439941	440522	441103	441684	442267	442850	443434	444019	444603
40	40	12. 445192	445779	446367	446956	447545	448136	448727	449319	449912	450505
50	50	12. 451100	451696	452292	452889	453487	454085	454685	455285	455886	456486
48	0	12. 457091	457694	458299	458904	459510	460117	460725	461334	461943	462552
10	10	12. 463165	463777	464390	465004	465619	466234	466851	467468	468086	468703
20	20	12. 469325	469946	470568	471191	471814	472439	473064	473690	474317	474944
30	30	12. 475574	476204	476835	477467	478099	478733	479367	480003	480639	481275
40	40	12. 481915	482554	483194	483835	484477	485120	485764	486408	487054	487700
50	50	12. 488349	488997	489647	490298	490949	491602	492256	492910	493566	494221
49	0	12. 494880	495538	496198	496858	497520	498182	498846	499510	500176	500841
10	10	12. 501510	502179	502849	503519	504191	504864	505538	506213	506889	507564
20	20	12. 508244	508923	509603	510284	510967	511650	512334	513020	513707	514394
30	30	12. 515083	515773	516464	517156	517849	518544	519239	519936	520633	521331
40	40	12. 522032	522733	523435	524139	524843	525549	526255	526963	527672	528381
50	50	12. 529094	529807	530520	531235	531951	532668	533387	534107	534827	535547
Minutes	Seconds	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'
		Co-tangent of 0 degree, or Tangent of 90 degrees.									

LOGARITHMIC TANGENTS.

Tangent of 89 degrees, or Co-tangent of 179 degrees.										Seconds	Minutes
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°		
12. 536273	536997	537723	538450	539178	539907	540637	541369	542102	542836	50	
12. 543572	544309	545047	545786	546526	547268	548011	548755	549501	550248	40	
12. 550996	551745	552496	553248	554001	554756	555512	556269	557028	557788	30	
12. 558549	559312	560076	560841	561608	562376	563145	563916	564688	565461	20	
12. 566236	567012	567790	568569	569349	570131	570914	571699	572485	573272	10	
12. 574061	574852	575644	576437	577231	578028	578825	579624	580425	581227	0	9
12. 582030	582835	583642	584450	585259	586070	586883	587697	588512	589330	50	
12. 590148	590968	591790	592614	593438	594265	595093	595922	596754	597586	40	
12. 598421	599257	600094	600934	601774	602617	603461	604307	605154	606003	30	
12. 606854	607706	608560	609416	610274	611133	611994	612856	613721	614587	20	
12. 615454	616324	617195	618068	618943	619819	620697	621577	622459	623343	10	
12. 624228	625115	626004	626895	627788	628683	629579	630477	631377	632279	0	8
12. 633183	634089	634996	635906	636817	637731	638646	639563	640482	641403	50	
12. 642326	643251	644178	645107	646038	646971	647906	648843	649782	650723	40	
12. 651667	652612	653559	654508	655460	656413	657369	658326	659286	660248	30	
12. 661212	662178	663146	664117	665090	666064	667041	668021	669002	669986	20	
12. 670972	671960	672950	673943	674938	675935	676935	677937	678941	679947	10	
12. 680956	681967	682981	683997	685015	686036	687059	688084	689112	690142	0	7
12. 691175	692210	693248	694288	695331	696376	697424	698474	699527	700583	50	
12. 701641	702701	703764	704830	705898	706970	708043	709119	710198	711280	40	
12. 712365	713452	714541	715634	716729	717827	718928	720032	721138	722248	30	
12. 723360	724475	725593	726714	727837	728964	730093	731226	732361	733500	20	
12. 734641	735785	736933	738083	739237	740393	741553	742716	743882	745051	10	
12. 746223	747398	748577	749759	750944	752132	753323	754518	755716	756912	0	6
12. 758122	759330	760542	761756	762975	764196	765421	766650	767882	769118	50	
12. 770357	771599	772845	774095	775349	776606	777866	779131	780399	781670	40	
12. 782946	784225	785508	786795	788085	789380	790678	791980	793287	794598	30	
12. 795911	797229	798551	799877	801207	802541	803880	805222	806569	807920	20	
12. 809275	810634	811998	813366	814738	816114	817495	818880	820270	821664	10	
12. 824466	825874	827286	828703	830125	831551	832982	834418	835858		0	5
12. 837304	838754	840209	841668	843133	844603	846077	847557	849042	850532	50	
12. 852027	853527	855032	856543	858059	859580	861106	862638	864176	865718	40	
12. 867267	868821	870380	871945	873516	875092	876674	878262	879856	881456	30	
12. 883061	884673	886290	887914	889543	891179	892821	894469	896124	897784	20	
12. 899452	901125	902805	904492	906185	907885	909591	911304	913024	914751	10	
12. 916485	918226	919973	921728	923490	925259	927035	928819	930610	932408	0	4
12. 934214	936027	937848	939677	941513	943357	945209	947069	948937	950813	50	
12. 952697	954589	956490	958399	960316	962242	964177	966120	968072	970033	40	
12. 972002	973981	975968	977965	979971	981986	984011	986045	988089	990142	30	
12. 992206	994279	996362	998455	1000558	1002671	1004795	1006929	1009074	1011229	20	
13. 013395	015572	017760	019959	022169	024390	026623	028868	031124	033392	10	
13. 035671	037963	040267	042583	044912	047253	049607	051974	054354	056746	0	3
13. 059152	061572	064005	066452	068912	071387	073876	076379	078897	081429	50	
13. 083976	086538	089116	091709	094317	096941	099581	102237	104910	107599	40	
13. 110305	113028	115768	118525	121300	124093	126904	129734	132581	135448	30	
13. 138334	141239	144163	147108	150072	153057	156063	159089	162137	165206	20	
13. 168297	171410	174546	177704	180886	184091	187320	190573	193851	197154	10	
13. 200482	203835	207215	210621	214054	217515	221003	224520	228065	231640	0	2
13. 235244	238878	242543	246239	249967	253727	257520	261347	265207	269102	50	
13. 273022	276999	281001	285041	289119	293236	297392	301588	305825	310104	40	
13. 314425	318790	323199	327653	332154	336701	341297	345942	350637	355384	30	
13. 360183	365035	369942	374906	379927	385006	390146	395347	400611	405940	20	
13. 411335	416798	422330	427934	433611	439364	445193	451102	457093	463167	10	
13. 469327	475576	481916	488350	494881	501512	508245	515085	522033	529095	0	1
13. 536274	543573	550997	558550	566237	574062	582031	590149	598422	606855	50	
13. 615455	624229	633184	642327	651667	661213	670972	680957	691176	701641	40	
13. 712365	723360	734641	746223	758123	770357	782946	795911	809275	823063	30	
13. 837304	852027	867267	883061	899452	916485	934214	952697	972002	992206	20	
14. 013395	035671	059153	083976	110305	138334	168297	200482	235244	273022	10	
14. 314425	360183	411335	469327	536274	615455	712365	837304	913395	314425	0	0
10°	9°	8°	7°	6°	5°	4°	3°	2°	1°	Seconds	Minutes
Co-tangent of 0 degree, or Tangent of 90 degrees.											

To reduce the time of the Moon's passage over the Meridian of Greenwich, to the time of her passage over any other Meridian.

Time from Moon's transit		Daily Retardation of the Moon's passage over the Meridian.																Longitude
		40"	42"	44"	46"	48"	50"	52"	54"	56"	58"	60"	62"	64"	66"			
h	m	m	s	m	s	m	s	m	s	m	s	m	s	m	s	m	s	o
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	33	0	34	0	36	0	37	0	39	0	40	0	42	0	43	0	5
40	1	5	1	8	1	11	1	14	1	17	1	21	1	24	1	27	1	30
1	0	1	37	1	42	1	47	1	51	1	56	2	1	2	5	2	10	15
20	2	10	2	16	2	22	2	29	2	35	2	41	2	47	2	53	3	20
40	2	42	2	50	2	58	3	6	3	14	3	21	3	29	3	37	4	25
2	0	3	15	3	24	3	33	3	43	3	52	4	2	4	11	4	20	30
20	3	47	3	58	4	9	4	20	4	31	4	42	4	53	5	4	5	35
40	4	20	4	32	4	45	4	57	5	10	5	22	5	35	5	47	6	40
3	0	4	52	5	6	5	20	5	34	5	48	6	2	6	16	6	30	45
20	5	24	5	40	5	56	6	11	6	27	6	43	6	58	7	14	7	50
40	5	57	6	14	6	31	6	49	7	6	7	23	7	40	7	57	8	55
4	0	6	29	6	48	7	7	7	26	7	45	8	3	8	22	8	34	60
20	7	2	7	22	7	42	8	3	8	23	8	43	9	4	9	24	9	65
40	7	34	7	56	8	18	8	40	9	2	9	24	9	45	10	7	10	70
5	0	8	7	8	30	8	54	9	17	9	41	10	4	10	27	10	51	75
20	8	39	9	4	9	29	9	54	10	10	10	44	11	9	11	34	13	80
40	9	12	9	38	10	5	10	32	10	58	11	25	11	51	12	17	14	85
6	0	9	44	10	12	10	41	11	9	11	37	12	5	12	33	13	1	90
20	10	16	10	46	11	16	11	46	12	15	12	45	13	15	13	44	14	95
40	10	49	11	20	11	52	12	23	12	54	13	25	13	56	14	27	14	100
7	0	11	21	11	54	12	27	13	0	13	33	14	6	14	38	15	11	105
20	11	54	12	28	13	3	13	37	14	12	14	46	15	20	15	54	16	110
40	12	26	13	2	13	38	14	14	14	50	15	26	16	2	16	37	17	115
8	0	12	58	13	36	14	14	14	51	15	29	16	6	16	44	17	21	120
20	13	31	14	10	14	49	15	29	16	8	16	46	17	25	18	4	18	125
40	14	3	14	44	15	25	16	6	16	47	17	27	18	7	18	48	19	130
9	0	14	36	15	18	16	1	16	43	17	25	18	7	18	49	19	34	135
20	15	8	15	52	16	36	17	20	18	4	18	48	19	31	20	14	20	140
40	15	41	16	26	17	12	17	57	18	43	19	28	20	13	20	58	21	145
10	0	16	13	17	0	17	48	18	34	19	21	20	8	20	55	21	41	150
20	16	46	17	34	18	23	19	12	20	0	20	48	21	37	22	25	23	155
40	17	18	18	59	19	49	20	39	21	29	22	18	23	8	23	58	24	160
11	0	17	50	18	42	19	34	20	26	21	17	22	9	23	0	23	51	165
20	18	23	19	16	20	10	21	3	21	56	22	49	23	4	24	35	25	170
40	18	55	19	50	20	45	21	40	22	35	23	29	24	24	25	18	26	175
12	0	19	28	20	24	21	21	22	17	23	14	24	10	25	6	26	12	180

TABLE XXXIX.

Correction to be applied to the time of the Moon's transit in finding the time of High Water.

Time of Moon's transit.	Correc- tion.	Time of Moon's transit.	Time of Moon's transit.	Correc- tion.	Time of Moon's transit.
h m	h m	h m	h m	h m	h m
0	0	12	0	1	3
20	0	5	20	0	54
40	0	10	40	0	47
1	0	16	13	0	34
20	0	22	20	0	22
40	0	28	40	0	9
2	0	33	14	0	3
20	0	39	20	0	11
40	0	44	40	0	18
3	0	50	15	0	9
20	0	54	20	0	24
40	0	58	40	0	24
4	0	1	16	0	23
20	1	5	20	0	20
40	1	7	40	0	18
5	0	1	17	0	14
20	1	9	20	0	9
40	1	8	40	0	5
6	0	1	18	0	0

TABLE XL.

Reduction of the Moon's Horizontal Parallax on account of the spheroidal figure of the earth.

Latitude.	Moon's Horizontal Parallax				
	53'	55'	57'	59'	61'
0	0	0	0	0	0
4	0	0	0	0	0
8	0	0	0	0	0
12	0	0	0	1	1
16	1	1	1	1	1
20	1	1	1	1	1
24	2	2	2	2	2
28	2	2	3	3	3
32	3	3	3	3	3
36	4	4	4	4	4
40	4	5	5	5	5
44	5	5	6	6	6
48	6	6	6	7	7
52	7	7	7	7	8
56	7	8	8	8	8
60	8	8	9	9	9
64	9	9	9	10	10
68	9	9	10	10	10
72	10	10	10	11	11
76	10	10	11	11	11
80	10	11	11	11	12
84	10	11	11	12	12
90	11	11	11	12	12

TABLE XLI.

Reduction of Latitude on account of the spheroidal figure of the earth.

Latitude.	Reduc- tion.	Latitude.
0	0	0
0	0	0
2	0	50
4	1	39
6	2	28
8	3	16
10	4	3
12	4	49
14	5	34
16	6	17
18	6	58
20	7	37
22	8	14
24	8	49
26	9	21
28	9	50
30	10	17
32	10	40
34	11	0
36	11	18
38	11	31
40	11	42
42	11	49
44	11	53

GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Crse.
1		2		3		4		5		6		7		8		
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees Points
01.0	00.0	02.0	00.0	03.0	00.0	04.0	00.0	05.0	00.0	06.0	00.0	07.0	00.0	08.0	00.0	90 8
01.0	00.0	02.0	00.0	03.0	00.1	04.0	00.1	05.0	00.1	06.0	00.1	07.0	00.1	08.0	00.1	89
01.0	00.0	02.0	00.1	03.0	00.1	04.0	00.1	05.0	00.2	06.0	00.2	07.0	00.2	08.0	00.3	88
01.0	00.0	02.0	00.1	03.0	00.1	04.0	00.2	05.0	00.2	06.0	00.3	07.0	00.3	08.0	00.4	74
01.0	00.1	02.0	00.1	03.0	00.2	04.0	00.2	05.0	00.3	06.0	00.3	07.0	00.4	08.0	00.4	87
01.0	00.1	02.0	00.1	03.0	00.2	04.0	00.3	05.0	00.3	06.0	00.4	07.0	00.5	08.0	00.6	86
01.0	00.1	02.0	00.2	03.0	00.3	04.0	00.3	05.0	00.4	06.0	00.5	07.0	00.6	08.0	00.7	85
01.0	00.1	02.0	00.2	03.0	00.3	04.0	00.4	05.0	00.5	06.0	00.6	07.0	00.7	08.0	00.8	74
01.0	00.1	02.0	00.2	03.0	00.3	04.0	00.4	05.0	00.5	06.0	00.6	07.0	00.7	08.0	00.8	84
01.0	00.1	02.0	00.2	03.0	00.4	04.0	00.5	05.0	00.6	06.0	00.7	06.9	00.9	07.9	01.0	83
01.0	00.1	02.0	00.3	03.0	00.4	04.0	00.6	05.0	00.7	05.9	00.8	06.9	01.0	07.9	01.1	82
01.0	00.1	02.0	00.3	03.0	00.4	04.0	00.6	04.9	00.7	05.9	00.9	06.9	01.0	07.9	01.2	74
01.0	00.2	02.0	00.3	03.0	00.5	04.0	00.6	04.9	00.8	05.9	00.9	06.9	01.1	07.9	01.3	81
01.0	00.2	02.0	00.3	03.0	00.5	03.9	00.7	04.9	00.9	05.9	01.0	06.9	01.2	07.9	01.4	80
01.0	00.2	02.0	00.4	02.9	00.6	03.9	00.8	04.9	01.0	05.9	01.1	06.9	01.3	07.9	01.5	79
01.0	00.2	02.0	00.4	02.9	00.6	03.9	00.8	04.9	01.0	05.9	01.2	06.9	01.4	07.8	01.6	7
01.0	00.2	02.0	00.4	02.9	00.6	03.9	00.8	04.9	01.0	05.9	01.2	06.8	01.5	07.8	01.7	78
01.0	00.2	01.9	00.4	02.9	00.7	03.9	00.9	04.9	01.1	05.8	01.3	06.8	01.6	07.8	01.8	77
01.0	00.2	01.9	00.5	02.9	00.7	03.9	01.0	04.9	01.2	05.8	01.5	06.8	01.7	07.8	01.9	76
01.0	00.2	01.9	00.5	02.9	00.7	03.9	01.0	04.9	01.2	05.8	01.5	06.8	01.7	07.8	01.9	64
01.0	00.3	01.9	00.5	02.9	00.8	03.9	01.0	04.8	01.3	05.8	01.6	06.8	01.8	07.7	02.1	75
01.0	00.3	01.9	00.6	02.9	00.8	03.8	01.1	04.8	01.4	05.8	01.7	06.7	01.9	07.7	02.2	74
01.0	00.3	01.9	00.6	02.9	00.9	03.8	01.2	04.8	01.5	05.7	01.7	06.7	02.0	07.7	02.3	64
01.0	00.3	01.9	00.6	02.9	00.9	03.8	01.2	04.8	01.5	05.7	01.8	06.7	02.0	07.7	02.3	73
01.0	00.3	01.9	00.6	02.9	00.9	03.8	01.2	04.8	01.5	05.7	01.9	06.7	02.2	07.6	02.5	72
00.9	00.3	01.9	00.7	02.8	01.0	03.8	01.3	04.7	01.6	05.7	02.0	06.6	02.3	07.6	02.6	71
00.9	00.3	01.9	00.7	02.8	01.0	03.8	01.3	04.7	01.7	05.6	02.0	06.6	02.4	07.5	02.7	64
00.9	00.3	01.9	00.7	02.8	01.0	03.8	01.4	04.7	01.7	05.6	02.1	06.6	02.4	07.5	02.7	70
00.9	00.4	01.9	00.7	02.8	01.1	03.7	01.4	04.7	01.8	05.6	02.2	06.5	02.5	07.5	02.9	69
00.9	00.4	01.9	00.7	02.8	01.1	03.7	01.5	04.6	01.9	05.6	02.2	06.5	02.6	07.4	03.0	68
00.9	00.4	01.8	00.8	02.8	01.1	03.7	01.5	04.6	01.9	05.5	02.3	06.5	02.7	07.4	03.1	6
00.9	00.4	01.8	00.8	02.8	01.2	03.7	01.6	04.6	02.0	05.5	02.3	06.4	02.7	07.4	03.1	67
00.9	00.4	01.8	00.8	02.7	01.2	03.7	01.6	04.6	02.0	05.5	02.4	06.4	02.8	07.3	03.3	66
00.9	00.4	01.8	00.8	02.7	01.3	03.6	01.7	04.5	02.1	05.4	02.5	06.3	03.0	07.3	03.4	65
00.9	00.4	01.8	00.9	02.7	01.3	03.6	01.7	04.5	02.1	05.4	02.6	06.3	03.0	07.2	03.4	54
00.9	00.4	01.8	00.9	02.7	01.3	03.6	01.8	04.5	02.2	05.4	02.6	06.3	03.1	07.2	03.5	64
00.9	00.5	01.8	00.9	02.7	01.4	03.6	01.8	04.5	02.3	05.3	02.7	06.2	03.2	07.1	03.6	63
00.9	00.5	01.8	00.9	02.6	01.4	03.5	01.9	04.4	02.3	05.3	02.8	06.2	03.3	07.1	03.8	62
00.9	00.5	01.8	00.9	02.6	01.4	03.5	01.9	04.4	02.4	05.3	02.8	06.2	03.3	07.1	03.8	54
00.9	00.5	01.7	01.0	02.6	01.5	03.5	01.9	04.4	02.4	05.2	02.9	06.1	03.4	07.0	03.9	61
00.9	00.5	01.7	01.0	02.6	01.5	03.5	02.0	04.3	02.5	05.2	03.0	06.1	03.5	06.9	04.0	60
00.9	00.5	01.7	01.0	02.6	01.5	03.4	02.1	04.3	02.6	05.1	03.1	06.0	03.6	06.9	04.1	53
00.9	00.5	01.7	01.0	02.6	01.5	03.4	02.1	04.3	02.6	05.1	03.1	06.0	03.6	06.9	04.1	59
00.8	00.5	01.7	01.1	02.5	01.6	03.4	02.1	04.2	02.6	05.1	03.2	05.9	03.7	06.8	04.2	58
00.8	00.5	01.7	01.1	02.5	01.6	03.4	02.2	04.2	02.7	05.0	03.3	05.9	03.8	06.7	04.4	57
00.8	00.6	01.7	01.1	02.5	01.7	03.3	02.2	04.2	02.8	05.0	03.3	05.8	03.9	06.7	04.4	5
00.8	00.6	01.7	01.1	02.5	01.7	03.3	02.2	04.1	02.8	05.0	03.4	05.8	03.9	06.6	04.5	56
00.8	00.6	01.6	01.1	02.5	01.7	03.3	02.3	04.1	02.9	04.9	03.4	05.7	04.0	06.6	04.6	55
00.8	00.6	01.6	01.2	02.4	01.8	03.2	02.4	04.0	02.9	04.9	03.5	05.7	04.1	06.5	04.7	54
00.8	00.6	01.6	01.2	02.4	01.8	03.2	02.4	04.0	03.0	04.8	03.6	05.6	04.2	06.4	04.8	44
00.8	00.6	01.6	01.2	02.4	01.8	03.2	02.4	04.0	03.0	04.8	03.6	05.6	04.2	06.4	04.8	53
00.8	00.6	01.6	01.2	02.4	01.8	03.2	02.5	03.9	03.1	04.7	03.7	05.5	04.3	06.3	04.9	52
00.8	00.6	01.6	01.3	02.3	01.9	03.1	02.5	03.9	03.1	04.7	03.8	05.4	04.4	06.2	05.0	51
00.8	00.6	01.5	01.3	02.3	01.9	03.1	02.5	03.9	03.2	04.6	03.8	05.4	04.4	06.2	05.1	44
00.8	00.6	01.5	01.3	02.3	01.9	03.1	02.6	03.8	03.2	04.6	03.9	05.4	04.5	06.1	05.1	50
00.8	00.7	01.5	01.3	02.3	02.0	03.0	02.6	03.8	03.3	04.5	03.9	05.3	04.6	06.0	05.2	49
00.7	00.7	01.5	01.3	02.2	02.0	03.0	02.7	03.7	03.3	04.5	04.0	05.2	04.7	05.9	05.4	48
00.7	00.7	01.5	01.3	02.2	02.0	03.0	02.7	03.7	03.4	04.4	04.0	05.2	04.7	05.9	05.4	41
00.7	00.7	01.5	01.4	02.2	02.0	02.9	02.7	03.7	03.4	04.4	04.1	05.1	04.8	05.9	05.5	47
00.7	00.7	01.4	01.4	02.2	02.1	02.9	02.8	03.6	03.5	04.3	04.2	05.0	04.9	05.8	05.6	46
00.7	00.7	01.4	01.4	02.1	02.1	02.8	02.8	03.5	03.5	04.2	04.2	04.9	04.9	05.7	05.7	45 4
Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees Points
DISTANCE.																Crse.
1		2		3		4		5		6		7		8		

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse.		DISTANCE.																Crse.	
Points	Degrees	9		10		11		12		13		14		15		16		Points	Degrees
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		
0	0	09.0	00.0	10.0	00.0	11.0	00.0	12.0	00.0	13.0	00.0	14.0	00.0	15.0	00.0	16.0	00.0	0	0
1	0	09.0	00.2	10.0	00.2	11.0	00.2	12.0	00.2	13.0	00.2	14.0	00.2	15.0	00.3	16.0	00.3	1	0
2	0	09.0	00.3	10.0	00.3	11.0	00.4	12.0	00.4	13.0	00.5	14.0	00.5	15.0	00.5	16.0	00.6	2	0
3	0	09.0	00.4	10.0	00.5	11.0	00.5	12.0	00.6	13.0	00.6	14.0	00.7	15.0	00.7	16.0	00.8	3	0
4	0	09.0	00.5	10.0	00.5	11.0	00.6	12.0	00.6	13.0	00.7	14.0	00.7	15.0	00.8	16.0	00.8	4	0
5	0	09.0	00.6	10.0	00.7	11.0	00.8	12.0	00.8	13.0	00.9	14.0	01.0	15.0	01.0	16.0	01.1	5	0
6	0	09.0	00.8	10.0	00.9	11.0	01.0	12.0	01.0	13.0	01.1	13.9	01.2	14.9	01.3	15.9	01.4	6	0
7	0	09.0	00.9	10.0	01.0	10.9	01.1	11.9	01.2	12.9	01.3	13.9	01.4	14.9	01.5	15.9	01.6	7	0
8	0	09.0	01.1	09.9	01.0	10.9	01.1	11.9	01.3	12.9	01.4	13.9	01.5	14.9	01.6	15.9	01.7	8	0
9	0	08.9	01.1	09.9	01.2	10.9	01.3	11.9	01.5	12.9	01.6	13.9	01.7	14.9	01.8	15.9	01.9	9	0
10	0	08.9	01.3	09.9	01.4	10.9	01.5	11.9	01.7	12.9	01.8	13.9	01.9	14.9	02.1	15.8	02.2	10	0
11	0	08.9	01.4	09.9	01.5	10.9	01.6	11.9	01.8	12.9	01.9	13.8	02.1	14.8	02.2	15.8	02.3	11	0
12	0	08.9	01.6	09.8	01.7	10.8	01.7	11.9	01.9	12.8	02.0	13.8	02.2	14.8	02.3	15.8	02.5	12	0
13	0	08.9	01.6	09.8	01.7	10.8	01.9	11.8	02.1	12.8	02.3	13.8	02.4	14.8	02.6	15.8	02.8	13	0
14	0	08.8	01.7	09.8	01.9	10.8	02.1	11.8	02.3	12.8	02.5	13.7	02.7	14.7	02.9	15.7	03.1	14	0
15	0	08.8	01.8	09.8	02.0	10.8	02.1	11.8	02.3	12.7	02.5	13.7	02.7	14.7	02.9	15.7	03.1	15	0
16	0	08.8	01.9	09.8	02.1	10.8	02.3	11.7	02.5	12.7	02.7	13.7	02.9	14.7	03.1	15.7	03.3	16	0
17	0	08.8	02.0	09.7	02.2	10.7	02.5	11.7	02.7	12.7	02.9	13.6	03.1	14.6	03.4	15.6	03.6	17	0
18	0	08.7	02.2	09.7	02.4	10.7	02.7	11.6	02.9	12.6	03.1	13.6	03.4	14.6	03.6	15.5	03.9	18	0
19	0	08.7	02.3	09.7	02.6	10.6	02.8	11.6	03.1	12.6	03.1	13.6	03.6	14.5	03.9	15.5	04.1	19	0
20	0	08.7	02.5	09.6	02.8	10.6	03.0	11.5	03.3	12.5	03.6	13.5	03.9	14.4	04.1	15.4	04.4	20	0
21	0	08.6	02.6	09.6	02.9	10.5	03.2	11.5	03.5	12.4	03.8	13.4	04.1	14.4	04.4	15.3	04.6	21	0
22	0	08.6	02.6	09.6	02.9	10.5	03.2	11.5	03.5	12.4	03.8	13.4	04.1	14.3	04.4	15.3	04.7	22	0
23	0	08.6	02.8	09.5	03.1	10.5	03.4	11.4	03.7	12.4	04.0	13.3	04.3	14.3	04.6	15.2	04.9	23	0
24	0	08.5	02.9	09.5	03.3	10.4	03.6	11.3	03.9	12.3	04.2	13.2	04.6	14.2	04.9	15.1	05.2	24	0
25	0	08.5	03.0	09.4	03.4	10.4	03.7	11.3	04.0	12.2	04.4	13.2	04.7	14.1	05.1	15.1	05.4	25	0
26	0	08.5	03.1	09.4	03.4	10.3	03.8	11.3	04.1	12.2	04.4	13.2	04.8	14.1	05.1	15.0	05.5	26	0
27	0	08.4	03.2	09.3	03.6	10.3	03.9	11.2	04.3	12.1	04.6	13.1	05.0	14.0	05.4	14.9	05.7	27	0
28	0	08.3	03.4	09.3	03.7	10.2	04.1	11.1	04.5	12.1	04.9	13.0	05.2	13.9	05.6	14.8	06.0	28	0
29	0	08.3	03.4	09.2	03.8	10.2	04.2	11.1	04.6	12.0	05.0	12.9	05.4	13.9	05.7	14.8	06.1	29	0
30	0	08.3	03.5	09.2	03.9	10.1	04.3	11.0	04.7	12.0	05.1	12.9	05.5	13.8	05.9	14.7	06.3	30	0
31	0	08.2	03.7	09.1	04.1	10.0	04.5	11.0	04.9	11.9	05.3	12.8	05.7	13.7	06.1	14.6	06.5	31	0
32	0	08.2	03.8	09.1	04.2	10.0	04.6	10.9	05.1	11.8	05.5	12.7	05.9	13.6	06.3	14.5	06.8	32	0
33	0	08.1	03.8	09.0	04.3	09.9	04.7	10.8	05.1	11.8	05.6	12.7	06.0	13.6	06.4	14.5	06.8	33	0
34	0	08.1	03.9	09.0	04.4	09.9	04.8	10.8	05.3	11.7	05.7	12.6	06.1	13.5	06.6	14.4	07.0	34	0
35	0	08.0	04.1	08.9	04.5	09.8	05.0	10.7	05.4	11.6	05.9	12.5	06.4	13.4	06.8	14.3	07.3	35	0
36	0	07.9	04.2	08.8	04.7	09.7	05.2	10.6	05.6	11.5	06.1	12.4	06.6	13.2	07.0	14.1	07.5	36	0
37	0	07.9	04.2	08.8	04.7	09.7	05.2	10.6	05.7	11.5	06.1	12.3	06.6	13.2	07.1	14.1	07.5	37	0
38	0	07.9	04.4	08.7	04.8	09.6	05.3	10.5	05.8	11.4	06.3	12.2	06.8	13.1	07.3	14.0	07.8	38	0
39	0	07.8	04.5	08.7	05.0	09.5	05.5	10.4	06.0	11.3	06.5	12.1	07.0	13.0	07.5	13.9	08.0	39	0
40	0	07.7	04.6	08.6	05.1	09.4	05.7	10.3	06.2	11.2	06.7	12.0	07.2	12.9	07.7	13.7	08.2	40	0
41	0	07.7	04.6	08.6	05.2	09.4	05.7	10.3	06.2	11.2	06.7	12.0	07.2	12.9	07.7	13.7	08.2	41	0
42	0	07.6	04.8	08.5	05.3	09.3	05.8	10.2	06.4	11.0	06.9	11.9	07.4	12.7	07.9	13.6	08.5	42	0
43	0	07.5	04.9	08.4	05.4	09.2	06.0	10.1	06.5	10.9	07.1	11.7	07.6	12.6	08.2	13.4	08.7	43	0
44	0	07.5	05.0	08.3	05.6	09.1	06.1	10.0	06.7	10.8	07.2	11.6	07.8	12.5	08.3	13.3	08.9	44	0
45	0	07.5	05.0	08.3	05.6	09.1	06.2	09.9	06.7	10.8	07.3	11.6	07.8	12.4	08.4	13.3	08.9	45	0
46	0	07.4	05.2	08.2	05.7	09.0	06.3	09.8	06.9	10.6	07.5	11.5	08.0	12.3	08.6	13.1	09.2	46	0
47	0	07.3	05.3	08.1	05.9	08.9	06.5	09.7	07.1	10.5	07.6	11.3	08.2	12.1	08.8	12.9	09.4	47	0
48	0	07.2	05.4	08.0	06.0	08.8	06.6	09.6	07.1	10.4	07.7	11.2	08.3	12.0	08.9	12.9	09.5	48	0
49	0	07.2	05.4	08.0	06.0	08.8	06.6	09.6	07.2	10.4	07.8	11.2	08.4	12.0	09.0	12.8	09.6	49	0
50	0	07.1	05.5	07.9	06.2	08.7	06.8	09.5	07.4	10.2	08.0	11.0	08.6	11.8	09.2	12.6	09.9	50	0
51	0	07.0	05.7	07.8	06.3	08.5	06.9	09.3	07.6	10.1	08.2	10.9	08.8	11.7	09.4	12.4	10.1	51	0
52	0	07.0	05.7	07.7	06.3	08.5	07.0	09.3	07.6	10.0	08.2	10.8	08.9	11.6	09.5	12.4	10.2	52	0
53	0	06.9	05.8	07.7	06.4	08.4	07.1	09.2	07.7	10.0	08.4	10.7	09.0	11.5	09.6	12.3	10.3	53	0
54	0	06.8	05.9	07.5	06.6	08.3	07.2	09.1	07.9	09.8	08.5	10.6	09.2	11.3	09.8	12.1	10.5	54	0
55	0	06.7	06.0	07.4	06.7	08.2	07.4	08.9	08.0	09.7	08.7	10.4	09.4	11.1	10.0	11.9	10.7	55	0
56	0	06.7	06.0	07.4	06.7	08.2	07.4	08.9	08.1	09.6	08.7	10.4	09.4	11.1	10.1	11.9	10.7	56	0
57	0	06.6	06.1	07.3	06.8	08.0	07.5	08.8	08.2	09.5	08.9	10.2	09.5	11.0	10.2	11.7	10.9	57	0
58	0	06.5	06.3	07.2	06.9	07.9	07.6	08.6	08.3	09.4	09.0	10.1	09.7	10.8	10.4	11.5	11.1	58	0
59	0	06.4	06.4	07.1	07.1	07.8	07.8	08.5	08.5	09.2	09.2	09.9	09.9	10.6	10.6	11.3	11.1	59	0
60	0	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	60	0
Crse.		DISTANCE.																Crse.	
		9		10		11		12		13		14		15		16			

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Crse	
17		18		19		20		21		22		23		24			
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees	Points
17.0	00.0	18.0	00.0	19.0	00.0	20.0	00.0	21.0	00.0	22.0	00.0	23.0	00.0	24.0	00.0	90	8
17.0	00.3	18.0	00.3	19.0	00.3	20.0	00.3	21.0	00.4	22.0	00.4	23.0	00.4	24.0	00.4	89	
17.0	00.6	18.0	00.6	19.0	00.7	20.0	00.7	21.0	00.7	22.0	00.8	23.0	00.8	24.0	00.8	88	
17.0	00.8	18.0	00.9	19.0	00.9	20.0	01.0	21.0	01.0	22.0	01.1	23.0	01.1	24.0	01.2	74	
17.0	00.9	18.0	00.9	19.0	01.0	20.0	01.0	21.0	01.1	22.0	01.2	23.0	01.2	24.0	01.3	87	
17.0	01.2	18.0	01.3	19.0	01.3	20.0	01.4	20.9	01.5	21.9	01.5	22.9	01.6	23.9	01.7	86	
16.9	01.5	17.9	01.6	18.9	01.7	19.9	01.7	20.9	01.8	21.9	01.9	22.9	02.0	23.9	02.1	85	
16.9	01.7	17.9	01.8	18.9	01.9	19.9	02.0	20.9	02.1	21.9	02.2	22.9	02.3	23.9	02.4	73	
16.9	01.8	17.9	01.9	18.9	02.0	19.9	02.1	20.9	02.2	21.9	02.3	22.9	02.4	23.9	02.5	84	
16.9	02.1	17.9	02.2	18.9	02.3	19.9	02.4	20.8	02.6	21.8	02.7	22.8	02.8	23.8	02.9	83	
16.8	02.4	17.8	02.5	18.8	02.6	19.8	02.8	20.8	02.9	21.8	03.1	22.8	03.2	23.8	03.3	82	
16.8	02.5	17.8	02.6	18.8	02.8	19.8	02.9	20.8	03.1	21.8	03.2	22.7	03.4	23.7	03.5	74	
16.8	02.7	17.8	02.8	18.8	03.0	19.8	03.1	20.7	03.3	21.7	03.4	22.7	03.6	23.7	03.8	81	
16.7	03.0	17.7	03.1	18.7	03.3	19.7	03.5	20.7	03.6	21.7	03.8	22.7	04.0	23.6	04.2	80	
16.7	03.2	17.7	03.4	18.7	03.6	19.6	03.8	20.6	04.0	21.6	04.2	22.6	04.4	23.6	04.6	79	
16.7	03.3	17.7	03.5	18.6	03.7	19.6	03.9	20.6	04.1	21.6	04.3	22.6	04.5	23.5	04.7	7	
16.6	03.5	17.6	03.7	18.6	04.0	19.6	04.2	20.5	04.4	21.5	04.6	22.5	04.8	23.5	05.0	78	
16.6	03.8	17.5	04.0	18.5	04.3	19.5	04.5	20.5	04.7	21.4	04.9	22.4	05.2	23.4	05.4	77	
16.5	04.1	17.5	04.4	18.4	04.6	19.4	04.8	20.4	05.1	21.3	05.3	22.3	05.6	23.3	05.8	76	
16.5	04.1	17.5	04.4	18.4	04.6	19.4	04.9	20.4	05.1	21.3	05.3	22.3	05.6	23.3	05.8	62	
16.4	04.4	17.4	04.7	18.4	04.9	19.3	05.2	20.3	05.4	21.3	05.7	22.2	06.0	23.2	06.2	75	
16.3	04.7	17.3	05.0	18.3	05.2	19.2	05.5	20.2	05.8	21.1	06.1	22.1	06.3	23.1	06.6	74	
16.3	04.9	17.2	05.2	18.2	05.5	19.1	05.8	20.1	06.1	21.1	06.4	22.0	06.7	23.0	07.0	68	
16.3	05.0	17.2	05.3	18.2	05.6	19.1	05.8	20.1	06.1	21.0	06.4	22.0	06.7	23.0	07.0	73	
16.2	05.3	17.1	05.6	18.1	05.9	19.0	06.2	20.0	06.5	20.9	06.8	21.9	07.1	22.8	07.4	72	
16.1	05.5	17.0	05.9	18.0	06.2	18.9	06.5	19.9	06.8	20.8	07.2	21.7	07.5	22.7	07.8	71	
16.0	05.7	16.9	06.1	17.9	06.4	18.8	06.7	19.8	07.1	20.7	07.4	21.7	07.7	22.6	08.1	62	
16.0	05.8	16.9	06.2	17.9	06.5	18.8	06.8	19.7	07.2	20.7	07.5	21.6	07.9	22.6	08.2	70	
15.9	06.1	16.8	06.5	17.7	06.8	18.7	07.2	19.6	07.5	20.5	07.9	21.5	08.2	22.4	08.6	69	
15.8	06.4	16.7	06.7	17.6	07.1	18.5	07.5	19.5	07.9	20.4	08.2	21.3	08.6	22.3	09.0	68	
15.7	06.5	16.6	06.9	17.6	07.3	18.5	07.7	19.4	08.0	20.3	08.4	21.2	08.8	22.2	09.2	6	
15.6	06.6	16.6	07.0	17.5	07.4	18.4	07.8	19.3	08.2	20.3	08.6	21.2	09.0	22.1	09.4	67	
15.5	06.9	16.4	07.3	17.4	07.7	18.3	08.1	19.2	08.5	20.1	08.9	21.0	09.4	21.9	09.8	66	
15.4	07.2	16.3	07.6	17.2	08.0	18.1	08.5	19.0	08.9	19.9	09.3	20.8	09.7	21.8	10.1	65	
15.4	07.3	16.3	07.7	17.2	08.1	18.1	08.6	19.0	09.0	19.9	09.4	20.8	09.8	21.7	10.3	53	
15.3	07.5	16.2	07.9	17.1	08.3	18.0	08.8	18.9	09.2	19.8	09.6	20.7	10.1	21.6	10.5	64	
15.1	07.7	16.0	08.2	16.9	08.6	17.8	09.1	18.7	09.5	19.6	10.0	20.5	10.4	21.4	10.9	63	
15.0	08.0	15.9	08.5	16.8	08.9	17.7	09.4	18.5	09.9	19.4	10.3	20.3	10.8	21.2	11.3	62	
15.0	08.0	15.9	08.5	16.8	09.0	17.6	09.4	18.5	09.9	19.4	10.4	20.3	10.8	21.2	11.3	52	
14.9	08.2	15.7	08.7	16.6	09.2	17.5	09.7	18.4	10.2	19.2	10.7	20.1	11.2	21.0	11.6	61	
14.7	08.5	15.6	09.0	16.5	09.5	17.3	10.0	18.2	10.5	19.1	11.0	19.9	11.5	20.8	12.0	60	
14.6	08.7	15.4	09.3	16.3	09.8	17.2	10.3	18.0	10.8	18.9	11.3	19.7	11.8	20.6	12.3	53	
14.6	08.8	15.4	09.3	16.3	09.8	17.1	10.3	18.0	10.8	18.9	11.3	19.7	11.8	20.6	12.4	59	
14.4	09.0	15.3	09.5	16.1	10.1	17.0	10.6	17.8	11.1	18.7	11.7	19.5	12.2	20.4	12.7	58	
14.3	09.3	15.1	09.8	15.9	10.3	16.8	10.9	17.6	11.4	18.5	12.0	19.3	12.5	20.1	13.1	57	
14.1	09.4	15.0	10.0	15.8	10.6	16.6	11.1	17.5	11.7	18.3	12.2	19.1	12.8	20.0	13.3	5	
14.1	09.5	14.9	10.1	15.8	10.6	16.6	11.2	17.4	11.7	18.2	12.3	19.1	12.9	19.9	13.4	56	
13.9	09.8	14.7	10.3	15.6	10.9	16.4	11.5	17.2	12.0	18.0	12.6	18.8	13.2	19.7	13.8	55	
13.8	10.0	14.6	10.6	15.4	11.2	16.2	11.8	17.0	12.3	17.8	12.9	18.6	13.5	19.4	14.1	54	
13.7	10.1	14.5	10.7	15.3	11.3	16.1	11.9	16.9	12.5	17.7	13.1	18.5	13.7	19.3	14.3	42	
13.6	10.2	14.4	10.8	15.2	11.4	16.0	12.0	16.8	12.6	17.6	13.2	18.4	13.8	19.2	14.4	53	
13.4	10.5	14.2	11.1	15.0	11.7	15.8	12.3	16.5	12.9	17.3	13.5	18.1	14.2	18.9	14.8	52	
13.2	10.7	14.0	11.3	14.8	12.0	15.5	12.6	16.3	13.2	17.1	13.8	17.9	14.5	18.7	15.1	51	
13.1	10.8	13.9	11.4	14.7	12.1	15.5	12.7	16.2	13.3	17.0	14.0	17.8	14.6	18.6	15.2	42	
13.0	10.9	13.8	11.6	14.6	12.2	15.3	12.9	16.1	13.5	16.9	14.1	17.6	14.8	18.4	15.4	50	
12.8	11.2	13.6	11.8	14.3	12.5	15.1	13.1	15.8	13.8	16.6	14.4	17.4	15.1	18.1	15.7	49	
12.6	11.4	13.4	12.0	14.1	12.7	14.9	13.4	15.6	14.1	16.3	14.7	17.1	15.4	17.8	16.1	48	
12.6	11.4	13.3	12.1	14.1	12.8	14.8	13.4	15.6	14.1	16.3	14.8	17.0	15.4	17.8	16.1	41	
12.4	11.6	13.2	12.3	13.9	13.0	14.6	13.6	15.4	14.3	16.1	15.0	16.8	15.7	17.6	16.4	47	
12.2	11.8	12.9	12.5	13.7	13.2	14.4	13.9	15.1	14.6	15.8	15.3	16.5	16.0	17.3	17.0	46	
12.0	12.0	12.7	12.7	13.4	13.4	14.1	14.1	14.8	14.8	15.6	15.6	16.3	16.3	17.0	17.0	45	
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees	Points
17	18	19	20	21	22	23	24	DISTANCE.		Crse						Degrees	Points

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPART

Course.		DISTANCE															
		25		26		27		28		29		30		31		3	
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.
0	0	25.0	00.0	26.0	00.0	27.0	00.0	28.0	00.0	29.0	00.0	30.0	00.0	31.0	00.0	32.0	00.0
1	1	25.0	00.4	26.0	00.5	27.0	00.5	28.0	00.5	29.0	00.5	30.0	00.5	31.0	00.5	32.0	00.5
2	2	25.0	00.9	26.0	00.9	27.0	00.9	28.0	01.0	29.0	01.0	30.0	01.0	31.0	01.1	32.0	01.1
3	3	25.0	01.2	26.0	01.3	27.0	01.3	28.0	01.4	29.0	01.4	30.0	01.5	31.0	01.5	32.0	01.5
4	4	25.0	01.3	26.0	01.4	27.0	01.4	28.0	01.5	29.0	01.5	30.0	01.6	31.0	01.6	32.0	01.6
5	5	24.9	01.7	25.9	01.8	26.9	01.9	27.9	02.0	28.9	02.0	29.9	02.1	30.9	02.2	31.9	02.2
6	6	24.9	02.2	25.9	02.3	26.9	02.4	27.9	02.4	28.9	02.5	29.9	02.6	30.9	02.7	31.9	02.7
7	7	24.9	02.4	25.9	02.5	26.9	02.6	27.9	02.7	28.9	02.8	29.9	02.9	30.9	03.0	31.8	03.0
8	8	24.9	02.6	25.9	02.7	26.9	02.8	27.8	02.9	28.8	03.0	29.8	03.1	30.8	03.2	31.8	03.2
9	9	24.8	03.0	25.8	03.2	26.8	03.3	27.8	03.4	28.8	03.5	29.8	03.7	30.8	03.8	31.8	03.8
10	10	24.8	03.5	25.7	03.6	26.7	03.8	27.7	03.9	28.7	04.0	29.7	04.2	30.7	04.3	31.7	04.3
11	11	24.7	03.7	25.7	03.8	26.7	04.0	27.7	04.1	28.7	04.3	29.7	04.4	30.7	04.5	31.7	04.5
12	12	24.7	03.9	25.7	04.1	26.7	04.2	27.7	04.4	28.6	04.5	29.6	04.7	30.6	04.8	31.6	04.8
13	13	24.6	04.3	25.6	04.5	26.6	04.7	27.6	04.9	28.6	05.0	29.5	05.2	30.5	05.4	31.5	05.4
14	14	24.5	04.8	25.5	05.0	26.5	05.2	27.5	05.3	28.5	05.5	29.4	05.7	30.4	05.9	31.4	05.9
15	15	24.5	04.9	25.5	05.1	26.5	05.3	27.5	05.5	28.4	05.7	29.4	05.9	30.4	06.0	31.4	06.0
16	16	24.5	05.2	25.4	05.4	26.4	05.6	27.4	05.8	28.4	06.0	29.3	06.2	30.3	06.4	31.3	06.4
17	17	24.4	05.6	25.3	05.8	26.3	06.1	27.3	06.3	28.3	06.5	29.2	06.7	30.2	07.0	31.2	07.0
18	18	24.3	06.0	25.2	06.3	26.2	06.5	27.2	06.8	28.1	07.0	29.1	07.3	30.1	07.5	31.0	07.5
19	19	24.3	06.1	25.2	06.3	26.2	06.6	27.2	06.8	28.1	07.0	29.1	07.3	30.1	07.5	31.0	07.5
20	20	24.1	06.5	25.1	06.7	26.1	07.0	27.0	07.2	28.0	07.5	29.0	07.8	29.9	08.0	30.9	08.0
21	21	24.0	06.9	25.0	07.2	26.0	07.4	26.9	07.7	27.9	08.0	28.8	08.3	29.8	08.5	30.8	08.5
22	22	23.9	07.3	24.9	07.5	25.8	07.8	26.8	08.1	27.8	08.4	28.7	08.7	29.7	09.0	30.6	09.0
23	23	23.9	07.3	24.9	07.6	25.8	07.9	26.8	08.2	27.7	08.5	28.7	08.8	29.6	09.1	30.6	09.1
24	24	23.8	07.7	24.7	08.0	25.7	08.3	26.6	08.7	27.6	09.0	28.5	09.3	29.5	09.6	30.4	09.6
25	25	23.6	08.1	24.6	08.5	25.5	08.8	26.5	09.1	27.4	09.4	28.4	09.8	29.3	10.1	30.3	10.1
26	26	23.5	08.4	24.5	08.8	25.4	09.1	26.4	09.4	27.3	09.8	28.2	10.1	29.2	10.4	30.1	10.4
27	27	23.5	08.6	24.4	08.9	25.4	09.2	26.3	09.6	27.3	09.9	28.2	10.3	29.2	10.6	30.1	10.6
28	28	23.3	09.0	24.3	09.3	25.2	09.7	26.1	10.0	27.1	10.4	28.0	10.8	28.9	11.1	29.9	11.1
29	29	23.2	09.4	24.1	09.7	25.0	10.1	26.0	10.5	26.9	10.9	27.8	11.2	28.7	11.6	29.7	11.6
30	30	23.1	09.6	24.0	09.9	24.9	10.3	25.9	10.7	26.8	11.1	27.7	11.5	28.6	11.9	29.6	11.9
31	31	23.0	09.8	23.9	10.2	24.9	10.5	25.8	10.9	26.7	11.3	27.6	11.7	28.5	12.1	29.5	12.1
32	32	22.8	10.2	23.8	10.6	24.7	11.0	25.6	11.4	26.5	11.8	27.4	12.2	28.3	12.6	29.2	12.6
33	33	22.7	10.6	23.6	11.0	24.5	11.4	25.4	11.8	26.3	12.3	27.2	12.7	28.1	13.1	29.0	13.1
34	34	22.6	10.7	23.5	11.1	24.4	11.5	25.3	12.0	26.2	12.4	27.1	12.8	28.0	13.3	28.9	13.3
35	35	22.5	11.0	23.4	11.4	24.3	11.8	25.2	12.3	26.1	12.7	27.0	13.2	27.9	13.6	28.8	13.6
36	36	22.3	11.3	23.2	11.8	24.1	12.3	24.9	12.7	25.8	13.2	26.7	13.6	27.6	14.1	28.5	14.1
37	37	22.1	11.7	23.0	12.2	23.8	12.7	24.7	13.1	25.6	13.6	26.5	14.1	27.4	14.6	28.3	14.6
38	38	22.0	11.8	22.9	12.3	23.8	12.7	24.7	13.2	25.6	13.7	26.5	14.1	27.3	14.6	28.2	14.6
39	39	21.9	12.1	22.7	12.6	23.6	13.1	24.5	13.6	25.4	14.1	26.2	14.5	27.1	15.0	28.0	15.0
40	40	21.7	12.5	22.5	13.0	23.4	13.5	24.2	14.0	25.1	14.5	26.0	15.0	26.8	15.5	27.7	15.5
41	41	21.4	12.9	22.3	13.4	23.2	13.9	24.0	14.4	24.9	14.9	25.7	15.4	26.6	15.9	27.4	15.9
42	42	21.4	12.9	22.3	13.4	23.1	13.9	24.0	14.4	24.9	14.9	25.7	15.5	26.6	16.0	27.4	16.0
43	43	21.2	13.2	22.0	13.8	22.9	14.3	23.7	14.8	24.6	15.4	25.4	15.9	26.3	16.4	27.1	16.4
44	44	21.0	13.6	21.8	14.2	22.6	14.7	23.5	15.2	24.3	15.8	25.2	16.3	26.0	16.9	26.8	16.9
45	45	20.8	13.9	21.6	14.4	22.4	15.0	23.3	15.6	24.1	16.1	24.9	16.7	25.8	17.2	26.6	17.2
46	46	20.7	14.0	21.6	14.5	22.4	15.1	23.2	15.7	24.0	16.2	24.9	16.8	25.7	17.3	26.5	17.3
47	47	20.5	14.3	21.3	14.9	22.1	15.5	22.9	16.1	23.8	16.6	24.6	17.2	25.4	17.8	26.2	17.8
48	48	20.2	14.7	21.0	15.3	21.8	15.9	22.7	16.5	23.5	17.0	24.3	17.6	25.1	18.2	25.9	18.2
49	49	20.1	14.9	20.9	15.5	21.7	16.1	22.5	16.7	23.3	17.3	24.1	17.9	24.9	18.5	25.7	18.5
50	50	20.0	15.0	20.8	15.6	21.6	16.2	22.4	16.9	23.2	17.5	24.0	18.1	24.8	18.7	25.6	18.7
51	51	19.7	15.4	20.5	16.0	21.3	16.6	22.1	17.2	22.9	17.9	23.6	18.5	24.4	19.1	25.2	19.1
52	52	19.4	15.7	20.2	16.4	21.0	17.0	21.8	17.6	22.5	18.3	23.3	18.9	24.1	19.5	24.9	19.5
53	53	19.3	15.9	20.1	16.5	20.9	17.1	21.6	17.8	22.4	18.4	23.2	19.0	24.0	19.7	24.7	19.7
54	54	19.2	16.1	19.9	16.7	20.7	17.4	21.4	18.0	22.2	18.6	23.0	19.3	23.7	19.9	24.5	19.9
55	55	18.9	16.4	19.6	17.1	20.4	17.7	21.1	18.4	21.9	19.0	22.6	19.7	23.4	20.3	24.2	20.3
56	56	18.6	16.7	19.3	17.4	20.1	18.1	20.8	18.7	21.6	19.4	22.3	20.1	23.0	20.7	23.8	20.7
57	57	18.5	16.8	19.3	17.5	20.0	18.1	20.7	18.8	21.5	19.5	22.2	20.1	23.0	20.8	23.7	20.8
58	58	18.3	17.0	19.0	17.7	19.7	18.4	20.5	19.1	21.2	19.8	21.9	20.5	22.7	21.1	23.4	21.1
59	59	18.0	17.4	18.7	18.1	19.4	18.8	20.1	19.5	20.9	20.1	21.6	20.8	22.3	21.5	23.0	21.5
60	60	17.7	17.7	18.4	18.4	19.1	19.1	19.8	19.8	20.5	20.5	21.2	21.2	21.9	21.9	22.6	21.9
Course.	Points Degrees.	25		26		27		28		29		30		31		3	
Course.	Points Degrees.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.

DISTANCE.

A GENERAL TRAVERSE TABLE; OR, DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.		DISTANCE.																Crse.	
Degrees	Points	33		34		35		36		37		38		39		40		Degrees	Points
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		
0	8	33.0	00.0	34.0	00.0	35.0	00.0	36.0	00.0	37.0	00.0	38.0	00.0	39.0	00.0	40.0	00.0	90	8
1	80	33.0	00.6	34.0	00.6	35.0	00.6	36.0	00.6	37.0	00.6	38.0	00.7	39.0	00.7	40.0	00.7	91	80
2	88	33.0	01.2	34.0	01.2	35.0	01.2	36.0	01.3	37.0	01.3	38.0	01.3	39.0	01.4	40.0	01.4	92	88
3	74	33.0	01.6	34.0	01.7	35.0	01.7	36.0	01.8	37.0	01.8	38.0	01.9	39.0	01.9	40.0	02.0	93	74
4	87	33.0	01.7	34.0	01.8	35.0	01.8	36.0	01.9	36.9	01.9	37.9	02.0	38.9	02.0	39.9	02.1	94	87
5	86	32.9	02.3	33.9	02.4	34.9	02.4	35.9	02.5	36.9	02.6	37.9	02.7	38.9	02.7	39.9	02.8	95	86
6	85	32.9	02.9	33.9	03.0	34.9	03.1	35.9	03.1	36.9	03.2	37.9	03.3	38.9	03.4	39.8	03.5	96	85
7	84	32.8	03.2	33.8	03.3	34.8	03.4	35.8	03.5	36.8	03.6	37.8	03.7	38.8	03.8	39.8	03.9	97	84
8	83	32.8	03.4	33.8	03.6	34.8	03.7	35.8	03.8	36.8	03.9	37.8	04.0	38.8	04.1	39.8	04.2	98	83
9	82	32.8	04.0	33.7	04.1	34.7	04.3	35.7	04.4	36.7	04.5	37.7	04.6	38.7	04.8	39.7	04.9	99	82
10	81	32.7	04.6	33.7	04.7	34.7	04.9	35.6	05.0	36.6	05.1	37.6	05.3	38.6	05.4	39.6	05.6	100	81
11	74	32.6	04.8	33.6	05.0	34.6	05.1	35.6	05.3	36.6	05.4	37.6	05.6	38.6	05.7	39.6	05.9	101	74
12	81	32.6	05.2	33.6	05.3	34.6	05.5	35.6	05.6	36.5	05.8	37.5	05.9	38.5	06.1	39.5	06.3	102	81
13	80	32.5	05.7	33.5	05.9	34.5	06.1	35.5	06.3	36.4	06.4	37.4	06.6	38.4	06.8	39.4	06.9	103	80
14	79	32.4	06.3	33.4	06.5	34.4	06.7	35.3	06.9	36.3	07.1	37.3	07.3	38.3	07.4	39.3	07.6	104	79
15	7	32.4	06.4	33.3	06.6	34.3	06.8	35.3	07.0	36.3	07.2	37.3	07.4	38.2	07.6	39.2	07.8	105	7
16	78	32.3	06.9	33.3	07.1	34.2	07.3	35.2	07.5	36.2	07.7	37.2	07.9	38.1	08.1	39.1	08.3	106	78
17	77	32.2	07.4	33.1	07.6	34.1	07.9	35.1	08.1	36.1	08.3	37.0	08.5	38.0	08.8	39.0	09.0	107	77
18	76	32.0	08.0	33.0	08.2	34.0	08.5	34.9	08.7	35.9	09.0	36.9	09.2	37.8	09.4	38.8	09.7	108	76
19	64	32.0	08.0	33.0	08.3	34.0	08.5	34.9	08.7	35.9	09.0	36.9	09.2	37.8	09.5	38.8	09.7	109	64
20	75	31.9	08.5	32.8	08.8	33.8	09.1	34.8	09.3	35.7	09.6	36.7	09.8	37.7	10.1	38.6	10.4	110	75
21	74	31.7	09.1	32.7	09.4	33.6	09.6	34.6	09.9	35.6	10.2	36.5	10.5	37.5	10.7	38.5	11.0	111	74
22	64	31.6	09.6	32.5	09.9	33.5	10.2	34.4	10.5	35.4	10.7	36.4	11.0	37.3	11.3	38.3	11.6	112	64
23	73	31.6	09.6	32.5	09.9	33.5	10.2	34.4	10.5	35.4	10.8	36.3	11.1	37.3	11.4	38.3	11.7	113	73
24	72	31.4	10.2	32.3	10.5	33.3	10.8	34.2	11.1	35.2	11.4	36.1	11.7	37.1	12.1	38.0	12.4	114	72
25	71	31.2	10.7	32.1	11.1	33.1	11.4	34.0	11.7	35.0	12.0	35.9	12.4	36.9	12.7	37.8	13.0	115	71
26	64	31.1	11.1	32.0	11.5	33.0	11.8	33.9	12.1	34.8	12.5	35.8	12.8	36.7	13.1	37.7	13.5	116	64
27	70	31.0	11.3	31.9	11.6	32.9	12.0	33.8	12.3	34.8	12.7	35.7	13.0	36.6	13.3	37.6	13.7	117	70
28	69	30.8	11.8	31.7	12.2	32.7	12.5	33.6	12.9	34.5	13.3	35.5	13.6	36.4	14.0	37.3	14.3	118	69
29	68	30.6	12.4	31.5	12.7	32.5	13.1	33.4	13.5	34.3	13.9	35.2	14.2	36.2	14.6	37.1	15.0	119	68
30	6	30.5	12.6	31.4	13.0	32.3	13.4	33.3	13.8	34.2	14.2	35.1	14.5	36.0	14.9	37.0	15.3	120	6
31	67	30.4	12.9	31.3	13.3	32.2	13.7	33.1	14.1	34.1	14.5	35.0	14.8	35.9	15.2	36.8	15.6	121	67
32	66	30.1	13.4	31.1	13.8	32.0	14.2	32.9	14.6	33.8	15.0	34.7	15.5	35.6	15.9	36.5	16.3	122	66
33	65	29.9	13.9	30.8	14.4	31.7	14.8	32.6	15.2	33.5	15.6	34.4	16.1	35.3	16.5	36.3	16.9	123	65
34	54	29.8	14.1	30.7	14.5	31.6	15.0	32.5	15.4	33.4	15.8	34.4	16.2	35.3	16.7	36.2	17.1	124	54
35	64	29.7	14.5	30.6	14.9	31.5	15.3	32.4	15.8	33.3	16.2	34.2	16.7	35.1	17.1	36.0	17.5	125	64
36	63	29.4	15.0	30.3	15.4	31.2	15.9	32.1	16.3	33.0	16.8	33.9	17.3	34.7	17.7	35.6	18.2	126	63
37	62	29.1	15.5	30.0	16.0	30.9	16.4	31.8	16.9	32.7	17.4	33.6	17.8	34.4	18.3	35.3	18.8	127	62
38	54	28.9	15.6	30.0	16.0	30.9	16.5	31.7	17.0	32.6	17.4	33.5	17.9	34.4	18.4	35.3	18.9	128	54
39	61	28.9	16.0	29.7	16.5	30.6	17.0	31.5	17.5	32.4	17.9	33.3	18.4	34.1	18.9	35.0	19.4	129	61
40	60	28.6	16.5	29.4	17.0	30.3	17.5	31.2	18.0	32.0	18.5	32.9	19.0	33.8	19.5	34.6	20.0	130	60
41	54	28.3	17.0	29.2	17.5	30.0	18.0	30.9	18.5	31.7	19.0	32.6	19.5	33.5	20.1	34.3	20.6	131	54
42	59	28.3	17.0	29.1	17.5	30.0	18.0	30.9	18.5	31.7	19.1	32.6	19.6	33.4	20.1	34.3	20.6	132	59
43	58	28.0	17.5	28.8	18.0	29.7	18.5	30.5	19.1	31.4	19.6	32.2	20.1	33.1	20.7	33.9	21.2	133	58
44	57	27.7	18.0	28.5	18.5	29.4	19.1	30.2	19.6	31.0	20.2	31.9	20.7	32.7	21.2	33.5	21.8	134	57
45	5	27.4	18.3	28.3	18.9	29.1	19.4	29.9	20.0	30.8	20.6	31.6	21.1	32.4	21.7	33.3	22.2	135	5
46	56	27.4	18.5	28.2	19.0	29.0	19.6	29.8	20.1	30.7	20.7	31.5	21.2	32.3	21.8	33.2	22.4	136	56
47	55	27.0	18.9	27.9	19.5	28.7	20.1	29.5	20.6	30.3	21.2	31.1	21.8	31.9	22.4	32.8	22.9	137	55
48	54	26.7	19.4	27.5	20.0	28.3	20.6	29.1	21.2	29.9	21.7	30.7	22.3	31.6	22.9	32.4	23.5	138	54
49	44	26.5	19.7	27.3	20.3	28.1	20.8	28.9	21.4	29.7	22.0	30.5	22.6	31.3	23.2	32.1	23.8	139	44
50	53	26.4	19.9	27.2	20.5	28.0	21.1	28.8	21.7	29.5	22.3	30.3	22.9	31.1	23.5	31.9	24.1	140	53
51	52	26.0	20.3	26.8	20.9	27.6	21.5	28.4	22.2	29.2	22.8	29.9	23.4	30.7	24.0	31.5	24.6	141	52
52	51	25.6	20.8	26.4	21.4	27.2	22.0	28.0	22.7	28.8	23.3	29.5	23.9	30.3	24.5	31.1	25.2	142	51
53	44	25.5	20.9	26.3	21.6	27.1	22.2	27.8	22.8	28.6	23.5	29.4	24.1	30.1	24.7	30.9	25.4	143	44
54	50	25.3	21.2	26.0	21.9	26.8	22.5	27.6	23.1	28.3	23.8	29.1	24.4	29.9	25.1	30.6	25.7	144	50
55	49	24.9	21.6	25.7	22.3	26.4	23.0	27.2	23.6	27.9	24.3	28.7	24.9	29.4	25.6	30.2	26.2	145	49
56	48	24.5	22.1	25.3	22.8	26.0	23.4	26.8	24.1	27.5	24.8	28.2	25.4	29.0	26.1	29.7	26.8	146	48
57	41	24.5	22.2	25.2	22.8	25.9	23.5	26.7	24.2	27.4	24.8	28.2	25.5	28.9	26.2	29.6	26.9	147	41
58	47	24.1	22.5	24.9	23.2	25.5	23.9	26.3	24.6	27.1	25.2	27.8	25.9	28.5	26.6	29.3	27.3	148	47
59	46	23.7	22.9	24.5	23.6	25.1	24.3	25.9	25.0	26.6	25.7	27.3	26.4	28.1	27.1	28.8	27.8	149	46
60	45	23.3	23.3	24.0	24.0	24.7	24.7	25.5	25.5	26.2	26.2	26.9	26.9	27.6	27.6	28.3	28.3	150	45
DISTANCE.		DISTANCE.																Crse.	
Degrees	Points	33		34		35		36		37		38		39		40		Degrees	Points
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.		DISTANCE.															
Points	Degrees	41		42		43		44		45		46		47		48	
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.
0	0	41.0	00.0	42.0	00.0	43.0	00.0	44.0	00.0	45.0	00.0	46.0	00.0	47.0	00.0	48.0	00.0
1	1	41.0	00.7	42.0	00.7	43.0	00.8	44.0	00.8	45.0	00.8	46.0	00.8	47.0	00.8	48.0	00.8
2	2	41.0	01.4	42.0	01.5	43.0	01.5	44.0	01.5	45.0	01.6	46.0	01.6	47.0	01.6	48.0	01.6
3	3	41.0	02.0	41.9	02.1	42.9	02.1	43.9	02.2	44.9	02.2	45.9	02.3	46.9	02.3	47.9	02.3
4	4	40.9	02.1	41.9	02.2	42.9	02.3	43.9	02.3	44.9	02.4	45.9	02.4	46.9	02.5	47.9	02.5
5	5	40.9	02.9	41.9	02.9	42.9	03.0	43.9	03.1	44.9	03.1	45.9	03.2	46.9	03.3	47.9	03.3
6	6	40.8	03.6	41.8	03.7	42.8	03.7	43.8	03.8	44.8	03.9	45.8	04.0	46.8	04.1	47.8	04.1
7	7	40.8	04.0	41.8	04.1	42.8	04.2	43.8	04.3	44.8	04.4	45.8	04.5	46.8	04.6	47.8	04.6
8	8	40.8	04.3	41.8	04.4	42.8	04.5	43.8	04.6	44.8	04.7	45.7	04.8	46.7	04.9	47.7	04.9
9	9	40.7	05.0	41.7	05.1	42.7	05.2	43.7	05.4	44.7	05.5	45.7	05.6	46.6	05.7	47.6	05.7
10	10	40.6	05.7	41.6	05.8	42.6	06.0	43.6	06.1	44.6	06.3	45.6	06.4	46.5	06.5	47.5	06.5
11	11	40.6	06.0	41.5	06.2	42.5	06.3	43.5	06.5	44.5	06.6	45.5	06.7	46.5	06.9	47.5	06.9
12	12	40.5	06.4	41.5	06.6	42.5	06.7	43.5	06.9	44.4	07.0	45.4	07.2	46.4	07.4	47.4	07.4
13	13	40.4	07.1	41.4	07.3	42.3	07.5	43.3	07.6	44.3	07.8	45.3	08.0	46.3	08.2	47.3	08.2
14	14	40.2	07.8	41.2	08.0	42.2	08.2	43.2	08.4	44.2	08.6	45.2	08.8	46.1	09.0	47.1	09.0
15	15	40.2	08.0	41.2	08.2	42.2	08.4	43.2	08.6	44.1	08.8	45.1	09.0	46.1	09.2	47.1	09.2
16	16	40.1	08.5	41.1	08.7	42.1	08.9	43.0	09.1	44.0	09.4	45.0	09.6	46.0	09.8	47.0	09.8
17	17	39.9	09.2	40.9	09.4	41.9	09.7	42.9	09.9	43.8	10.1	44.8	10.3	45.8	10.6	46.8	10.6
18	18	39.8	09.9	40.8	10.2	41.7	10.4	42.7	10.6	43.7	10.9	44.6	11.1	45.6	11.4	46.6	11.4
19	19	39.8	10.0	40.7	10.2	41.7	10.4	42.7	10.7	43.7	10.9	44.6	11.2	45.6	11.4	46.6	11.4
20	20	39.6	10.6	40.6	10.9	41.5	11.1	42.5	11.4	43.5	11.6	44.4	11.9	45.4	12.2	46.4	12.2
21	21	39.4	11.3	40.4	11.6	41.3	11.9	42.3	12.1	43.3	12.4	44.2	12.7	45.2	13.0	46.1	13.0
22	22	39.2	11.9	40.2	12.2	41.1	12.5	42.1	12.8	43.1	13.1	44.0	13.4	45.0	13.6	45.9	13.6
23	23	39.2	12.0	40.2	12.3	41.1	12.6	42.1	12.9	43.0	13.2	44.0	13.4	44.9	13.7	45.9	13.7
24	24	39.0	12.7	39.9	13.0	40.9	13.3	41.8	13.6	42.8	13.9	43.7	14.2	44.7	14.5	45.7	14.5
25	25	38.8	13.3	39.7	13.7	40.7	14.0	41.6	14.3	42.5	14.7	43.5	15.0	44.4	15.3	45.4	15.3
26	26	38.6	13.8	39.5	14.1	40.5	14.5	41.4	14.8	42.4	15.2	43.3	15.5	44.3	15.8	45.2	15.8
27	27	38.5	14.0	39.5	14.4	40.4	14.7	41.3	15.0	42.3	15.4	43.2	15.7	44.2	16.1	45.1	16.1
28	28	38.3	14.7	39.2	15.1	40.1	15.4	41.1	15.8	42.0	16.1	42.9	16.5	43.9	16.8	44.8	16.8
29	29	38.0	15.4	38.9	15.7	39.9	16.1	40.8	16.5	41.7	16.9	42.7	17.2	43.6	17.6	44.5	17.6
30	30	37.9	15.7	38.8	16.1	39.7	16.5	40.7	16.8	41.6	17.2	42.5	17.6	43.4	18.0	44.3	18.0
31	31	37.7	16.0	38.7	16.4	39.6	16.8	40.5	17.2	41.4	17.6	42.3	18.0	43.3	18.4	44.2	18.4
32	32	37.5	16.7	38.4	17.1	39.3	17.5	40.2	17.9	41.1	18.3	42.0	18.7	42.9	19.1	43.9	19.1
33	33	37.2	17.3	38.1	17.7	39.0	18.2	39.9	18.6	40.8	19.0	41.7	19.4	42.6	19.9	43.5	19.9
34	34	37.1	17.5	38.0	18.0	38.9	18.4	39.8	18.8	40.7	19.2	41.6	19.7	42.5	20.1	43.4	20.1
35	35	36.9	18.0	37.7	18.4	38.6	18.8	39.5	19.3	40.4	19.7	41.3	20.2	42.2	20.6	43.1	20.6
36	36	36.5	18.6	37.4	19.1	38.3	19.5	39.2	20.0	40.1	20.4	41.0	20.9	41.9	21.3	42.8	21.3
37	37	36.2	19.2	37.1	19.7	38.0	20.2	38.8	20.7	39.7	21.1	40.6	21.6	41.5	22.1	42.4	22.1
38	38	36.2	19.3	37.0	19.8	37.9	20.3	38.8	20.7	39.7	21.2	40.6	21.7	41.5	22.2	42.3	22.2
39	39	35.9	19.9	36.7	20.4	37.6	20.8	38.5	21.3	39.4	21.8	40.2	22.3	41.1	22.8	42.0	22.8
40	40	35.5	20.5	36.4	21.0	37.2	21.5	38.1	22.0	39.0	22.5	39.8	23.0	40.7	23.5	41.6	23.5
41	41	35.2	21.1	36.0	21.6	36.9	22.1	37.7	22.6	38.6	23.1	39.5	23.6	40.3	24.2	41.2	24.2
42	42	35.1	21.1	36.0	21.6	36.9	22.1	37.7	22.7	38.6	23.2	39.4	23.7	40.3	24.2	41.1	24.2
43	43	34.8	21.7	35.6	22.3	36.5	22.8	37.3	23.3	38.2	23.8	39.0	24.4	39.9	24.9	40.7	24.9
44	44	34.4	22.3	35.2	22.9	36.1	23.4	36.9	24.0	37.7	24.5	38.6	25.1	39.4	25.6	40.3	25.6
45	45	34.1	22.8	34.9	23.3	35.8	23.9	36.6	24.4	37.4	25.0	38.2	25.6	39.1	26.1	39.9	26.1
46	46	34.0	22.9	34.8	23.5	35.6	24.0	36.5	24.6	37.3	25.2	38.1	25.7	39.0	26.3	39.8	26.3
47	47	33.6	23.5	34.4	24.1	35.2	24.7	36.0	25.2	36.9	25.8	37.7	26.4	38.5	27.0	39.3	27.0
48	48	33.2	24.1	34.0	24.7	34.8	25.3	35.6	25.9	36.4	26.5	37.2	27.0	38.0	27.6	38.8	27.6
49	49	32.9	24.4	33.7	25.0	34.5	25.6	35.3	26.2	36.1	26.8	36.9	27.4	37.8	28.0	38.6	28.0
50	50	32.7	24.7	33.5	25.3	34.3	25.9	35.1	26.5	35.9	27.1	36.7	27.7	37.5	28.3	38.3	28.3
51	51	32.3	25.2	33.1	25.9	33.9	26.5	34.7	27.1	35.5	27.7	36.2	28.3	37.0	28.9	37.8	28.9
52	52	31.9	25.8	32.6	26.4	33.4	27.1	34.2	27.7	35.0	28.3	35.7	28.9	36.5	29.6	37.3	29.6
53	53	31.7	26.0	32.5	26.6	33.2	27.3	34.0	27.9	34.8	28.5	35.6	29.2	36.3	29.8	37.1	29.8
54	54	31.4	26.4	32.2	27.0	32.9	27.6	33.7	28.3	34.5	28.9	35.2	29.6	36.0	30.2	36.8	30.2
55	55	30.9	26.9	31.7	27.6	32.5	28.2	33.2	28.9	34.0	29.5	34.7	30.2	35.5	30.8	36.2	30.8
56	56	30.5	27.4	31.2	28.1	32.0	28.8	32.7	29.4	33.4	30.1	34.2	30.8	34.9	31.4	35.7	31.4
57	57	30.4	27.5	31.1	28.2	31.9	28.9	32.6	29.5	33.3	30.2	34.1	30.9	34.8	31.6	35.6	31.6
58	58	30.0	28.0	30.7	28.6	31.4	29.3	32.2	30.0	32.9	30.7	33.6	31.4	34.4	32.1	35.1	32.1
59	59	29.5	28.5	30.2	29.2	30.9	29.9	31.7	30.6	32.4	31.3	33.1	32.0	33.8	32.6	34.5	32.6
60	60	29.0	29.0	29.7	29.7	30.4	30.4	31.1	31.1	31.8	31.8	32.5	32.5	33.2	33.2	33.9	33.9
Points	Degrees	41		42		43		44		45		46		47		48	
		Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.
Crse.		DISTANCE.															

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Crs.
49		50		51		52		53		54		55		56		
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees Points
49.0	00.0	50.0	00.0	51.0	00.0	52.0	00.0	53.0	00.0	54.0	00.0	55.0	00.0	56.0	00.0	90
49.0	00.9	50.0	00.9	51.0	00.9	52.0	00.9	53.0	00.9	54.0	00.9	55.0	01.0	56.0	01.0	89
49.0	01.7	50.0	01.7	51.0	01.8	52.0	01.8	53.0	01.8	54.0	01.9	55.0	01.9	56.0	02.0	88
48.9	02.4	49.9	02.5	50.9	02.5	51.9	02.6	52.9	02.6	53.9	02.7	54.9	02.7	55.9	02.8	87
48.9	02.6	49.9	02.6	50.9	02.7	51.9	02.7	52.9	02.8	53.9	02.8	54.9	02.9	55.9	02.9	86
48.9	03.4	49.9	03.5	50.9	03.6	51.9	03.6	52.9	03.7	53.9	03.8	54.9	03.8	55.9	03.9	85
48.8	04.3	49.8	04.4	50.8	04.4	51.8	04.5	52.8	04.6	53.8	04.7	54.8	04.8	55.8	04.9	84
48.8	04.8	49.8	04.9	50.8	05.0	51.7	05.1	52.7	05.2	53.7	05.3	54.7	05.4	55.7	05.5	83
48.7	05.1	49.7	05.2	50.7	05.3	51.7	05.4	52.7	05.5	53.7	05.6	54.7	05.7	55.7	05.9	82
48.6	06.0	49.6	06.1	50.6	06.2	51.6	06.3	52.6	06.5	53.6	06.6	54.6	06.7	55.6	06.8	81
48.5	06.8	49.5	07.0	50.5	07.1	51.5	07.2	52.5	07.4	53.5	07.5	54.5	07.7	55.5	07.8	80
48.5	07.2	49.5	07.3	50.4	07.5	51.4	07.6	52.4	07.8	53.4	07.9	54.4	08.1	55.4	08.2	79
48.4	07.7	49.4	07.8	50.4	08.0	51.4	08.1	52.3	08.3	53.3	08.4	54.3	08.6	55.3	08.8	78
48.3	08.5	49.2	08.7	50.2	08.9	51.2	09.0	52.2	09.2	53.2	09.4	54.2	09.6	55.1	09.7	77
48.1	09.3	49.1	09.5	50.1	09.7	51.0	09.9	52.0	10.1	53.0	10.3	54.0	10.5	55.0	10.7	76
48.1	09.6	49.0	09.8	50.0	10.0	51.0	10.1	52.0	10.3	53.0	10.5	53.9	10.7	54.9	10.9	75
47.9	10.2	48.9	10.4	49.9	10.6	50.9	10.8	51.8	11.0	52.8	11.2	53.8	11.4	54.8	11.6	74
47.7	11.0	48.7	11.2	49.7	11.5	50.7	11.7	51.6	11.9	52.6	12.1	53.6	12.4	54.6	12.6	73
47.5	11.9	48.5	12.1	49.5	12.3	50.5	12.6	51.4	12.8	52.4	13.1	53.4	13.3	54.3	13.5	72
47.5	11.9	48.5	12.1	49.5	12.4	50.4	12.6	51.4	12.9	52.4	13.1	53.4	13.4	54.3	13.6	71
47.3	12.7	48.3	12.9	49.3	13.2	50.2	13.5	51.2	13.7	52.2	14.0	53.1	14.2	54.1	14.5	70
47.1	13.5	48.1	13.8	49.0	14.1	50.0	14.3	50.9	14.6	51.9	14.9	52.9	15.2	53.8	15.4	69
46.9	14.2	47.8	14.5	48.8	14.8	49.8	15.1	50.7	15.4	51.7	15.7	52.6	16.0	53.6	16.3	68
46.9	14.3	47.8	14.6	48.8	14.9	49.7	15.2	50.7	15.5	51.6	15.8	52.6	16.1	53.6	16.4	67
46.6	15.1	47.6	15.5	48.5	15.8	49.5	16.1	50.4	16.4	51.4	16.7	52.3	17.0	53.3	17.3	66
46.3	16.0	47.3	16.3	48.2	16.6	49.2	16.9	50.1	17.3	51.1	17.6	52.0	17.9	52.9	18.2	65
46.1	16.5	47.1	16.8	48.0	17.2	49.0	17.5	49.9	17.9	50.8	18.2	51.8	18.5	52.7	18.9	64
46.0	16.8	47.0	17.1	47.9	17.4	48.9	17.8	49.8	18.1	50.7	18.5	51.7	18.8	52.6	19.2	63
45.7	17.6	46.7	17.9	47.6	18.3	48.5	18.6	49.5	19.0	50.4	19.4	51.3	19.7	52.3	20.1	62
45.4	18.4	46.4	18.7	47.3	19.1	48.2	19.5	49.1	19.9	50.1	20.2	51.0	20.6	51.9	21.0	61
45.3	18.8	46.2	19.1	47.1	19.5	48.0	19.9	49.0	20.3	49.9	20.7	50.8	21.0	51.7	21.4	60
45.1	19.1	46.0	19.5	46.9	19.9	47.9	20.3	48.8	20.7	49.7	21.1	50.6	21.5	51.5	21.9	59
44.8	19.9	45.7	20.3	46.6	20.7	47.5	21.2	48.4	21.6	49.3	22.0	50.2	22.4	51.2	22.8	58
44.4	20.7	45.3	21.1	46.2	21.6	47.1	22.0	48.0	22.4	48.9	22.8	49.8	23.2	50.8	23.7	57
44.3	21.0	45.2	21.4	46.1	21.8	47.0	22.2	47.9	22.7	48.8	23.1	49.7	23.5	50.6	23.9	56
44.0	21.5	44.9	21.9	45.8	22.4	46.7	22.8	47.6	23.2	48.5	23.7	49.4	24.1	50.3	24.5	55
43.7	22.2	44.6	22.7	45.4	23.2	46.3	23.6	47.2	24.1	48.1	24.5	49.0	25.0	49.9	25.4	54
43.3	23.0	44.1	23.5	45.0	23.9	45.9	24.4	46.8	24.9	47.7	25.4	48.6	25.8	49.4	26.3	53
43.2	23.1	44.1	23.6	45.0	24.0	45.9	24.5	46.7	25.0	47.6	25.5	48.5	25.9	49.4	26.4	52
42.9	23.8	43.7	24.2	44.6	24.7	45.5	25.2	46.4	25.7	47.2	26.2	48.1	26.7	49.0	27.1	51
42.4	24.5	43.3	25.0	44.2	25.5	45.0	26.0	45.9	26.5	46.8	27.0	47.6	27.7	48.5	28.0	50
42.0	25.2	42.9	25.7	43.7	26.2	44.6	26.7	45.5	27.2	46.3	27.8	47.2	28.3	48.0	28.8	49
42.0	25.2	42.9	25.8	43.7	26.3	44.6	26.8	45.4	27.3	46.3	27.8	47.1	28.3	48.0	28.8	48
41.6	26.0	42.4	26.5	43.3	27.0	44.1	27.5	44.9	28.1	45.8	28.6	46.6	29.1	47.5	29.7	47
41.1	26.7	41.9	27.2	42.8	27.8	43.6	28.3	44.4	28.9	45.3	29.4	46.1	30.0	47.0	30.5	46
40.7	27.2	41.6	27.8	42.4	28.3	43.2	28.9	44.1	29.4	44.9	30.0	45.7	30.6	46.6	31.1	45
40.6	27.4	41.5	28.0	42.3	28.5	43.1	29.1	43.9	29.6	44.8	30.2	45.6	30.8	46.4	31.3	44
40.1	28.1	41.0	28.7	41.8	29.3	42.6	29.8	43.4	30.4	44.2	31.0	45.1	31.5	45.9	32.1	43
39.6	28.8	40.5	29.4	41.3	30.0	42.1	30.6	42.9	31.2	43.7	31.7	44.5	32.3	45.3	32.9	42
39.4	29.2	40.2	29.8	41.0	30.4	41.8	31.0	42.6	31.6	43.4	32.2	44.2	32.8	45.0	33.4	41
39.1	29.5	39.9	30.1	40.7	30.7	41.5	31.3	42.3	31.9	43.1	32.5	43.9	33.1	44.7	33.7	40
38.6	30.2	39.4	30.8	40.2	31.4	41.0	32.0	41.8	32.6	42.6	33.2	43.3	33.9	44.1	34.5	39
38.1	30.8	38.9	31.5	39.6	32.1	40.4	32.7	41.2	33.4	42.0	34.0	42.7	34.6	43.5	35.2	38
37.9	31.1	38.7	31.7	39.4	32.4	40.2	33.0	41.0	33.6	41.7	34.3	42.5	34.9	43.3	35.5	37
37.5	31.5	38.3	32.1	39.1	32.8	39.8	33.4	40.6	34.1	41.4	34.7	42.1	35.4	42.9	36.0	36
37.0	32.1	37.7	32.8	38.5	33.5	39.2	34.1	40.0	34.8	40.8	35.4	41.5	36.1	42.3	36.7	35
36.4	32.8	37.2	33.5	37.9	34.1	38.6	34.8	39.4	35.5	40.1	36.1	40.9	36.8	41.6	37.5	34
36.3	32.9	37.0	33.6	37.8	34.2	38.5	34.9	39.3	35.6	40.0	36.3	40.8	36.9	41.5	37.6	33
35.8	33.4	36.6	34.1	37.3	34.8	38.0	35.5	38.8	36.1	39.5	36.8	40.2	37.5	41.0	38.2	32
35.2	34.0	36.0	34.7	36.7	35.4	37.4	36.1	38.1	36.8	38.8	37.5	39.6	38.2	40.3	38.9	31
34.6	34.6	35.4	35.4	36.1	36.1	36.8	36.8	37.5	37.5	38.2	38.2	38.9	38.9	39.6	39.6	30
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees Points
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	Crs.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.		DISTANCE.															
Points	Degrees	57		58		59		60		61		62		63		64	
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.
0	0	57.0	00.0	58.0	00.0	59.0	00.0	60.0	00.0	61.0	00.0	62.0	00.0	63.0	00.0	64.0	00.0
1	1	57.0	01.0	58.0	01.0	59.0	01.0	60.0	01.0	61.0	01.1	62.0	01.1	63.0	01.1	64.0	01.1
2	2	57.0	02.0	58.0	02.0	59.0	02.1	60.0	02.1	61.0	02.1	62.0	02.2	63.0	02.2	64.0	02.2
3	3	56.9	02.8	57.9	02.9	58.9	02.9	59.9	02.9	60.9	03.0	61.9	03.0	62.9	03.1	63.9	03.1
4	4	56.9	03.0	57.9	03.0	58.9	03.1	59.9	03.1	60.9	03.2	61.9	03.2	62.9	03.3	63.9	03.3
5	5	56.9	04.0	57.9	04.0	58.9	04.1	59.9	04.2	60.9	04.3	61.8	04.3	62.8	04.4	63.8	04.4
6	6	56.8	05.0	57.8	05.1	58.8	05.1	59.8	05.2	60.8	05.3	61.8	05.4	62.8	05.5	63.8	05.5
7	7	56.7	05.6	57.7	05.7	58.7	05.8	59.7	05.9	60.7	06.0	61.7	06.1	62.7	06.2	63.7	06.2
8	8	56.7	06.0	57.7	06.1	58.7	06.2	59.7	06.3	60.7	06.4	61.7	06.5	62.7	06.6	63.6	06.3
9	9	56.6	06.9	57.6	07.1	58.6	07.2	59.6	07.3	60.5	07.4	61.5	07.6	62.5	07.7	63.5	07.1
10	10	56.4	07.9	57.4	08.1	58.4	08.2	59.4	08.4	60.4	08.5	61.4	08.6	62.4	08.8	63.4	08.1
11	11	56.4	08.4	57.4	08.5	58.4	08.7	59.3	08.8	60.3	08.9	61.3	09.1	62.3	09.2	63.3	08.8
12	12	56.3	08.9	57.3	09.1	58.3	09.2	59.3	09.4	60.2	09.5	61.2	09.7	62.2	09.9	63.2	09.2
13	13	56.1	09.9	57.1	10.1	58.1	10.2	59.1	10.4	60.1	10.6	61.1	10.8	62.0	10.9	63.0	10.0
14	14	56.0	10.9	56.9	11.1	57.9	11.3	58.9	11.4	59.9	11.6	60.9	11.8	61.8	12.0	62.8	10.9
15	15	55.9	11.1	56.9	11.3	57.9	11.5	58.8	11.7	59.8	11.9	60.8	12.1	61.8	12.3	62.8	11.8
16	16	55.8	11.9	56.7	12.1	57.7	12.3	58.7	12.5	59.7	12.7	60.6	12.9	61.6	13.1	62.6	11.7
17	17	55.5	12.8	56.5	13.0	57.5	13.3	58.5	13.5	59.4	13.7	60.4	13.9	61.4	14.2	62.4	11.5
18	18	55.3	13.8	56.3	14.0	57.2	14.3	58.2	14.5	59.2	14.8	60.2	15.0	61.1	15.2	62.1	11.4
19	19	55.3	13.8	56.3	14.1	57.2	14.3	58.2	14.6	59.2	14.8	60.1	15.1	61.1	15.3	62.1	11.3
20	20	55.1	14.8	56.0	15.0	57.0	15.3	58.0	15.5	58.9	15.8	59.9	16.0	60.9	16.3	61.8	11.2
21	21	54.8	15.7	55.8	16.0	56.7	16.3	57.7	16.5	58.6	16.8	59.6	17.1	60.6	17.4	61.5	11.1
22	22	54.5	16.5	55.5	16.8	56.5	17.1	57.4	17.4	58.4	17.7	59.3	18.0	60.3	18.3	61.2	11.0
23	23	54.5	16.7	55.5	17.0	56.4	17.2	57.4	17.5	58.3	17.8	59.3	18.1	60.2	18.4	61.2	10.9
24	24	54.2	17.6	55.2	17.9	56.1	18.2	57.1	18.5	58.0	18.9	59.0	19.2	59.9	19.5	60.9	10.8
25	25	53.9	18.6	54.8	18.9	55.8	19.2	56.7	19.5	57.7	19.9	58.6	20.2	59.6	20.5	60.5	10.7
26	26	53.7	19.2	54.6	19.5	55.6	19.9	56.5	20.2	57.4	20.6	58.4	20.9	59.3	21.2	60.3	10.6
27	27	53.6	19.5	54.5	19.8	55.4	20.2	56.4	20.5	57.3	20.9	58.3	21.2	59.2	21.5	60.1	10.5
28	28	53.2	20.4	54.1	20.8	55.1	21.1	56.0	21.5	56.9	21.9	57.9	22.2	58.8	22.6	59.7	10.4
29	29	52.8	21.4	53.8	21.7	54.7	22.1	55.6	22.5	56.6	22.9	57.5	23.2	58.4	23.6	59.3	10.3
30	30	52.7	21.8	53.6	22.2	54.5	22.6	55.4	23.0	56.4	23.3	57.3	23.7	58.2	24.1	59.1	10.2
31	31	52.5	22.3	53.4	22.7	54.3	23.1	55.2	23.4	56.2	23.8	57.1	24.2	58.0	24.6	58.9	10.1
32	32	52.1	23.2	53.0	23.6	53.9	24.0	54.8	24.4	55.7	24.8	56.6	25.2	57.6	25.6	58.5	10.0
33	33	51.7	24.1	52.6	24.5	53.5	24.9	54.4	25.4	55.3	25.8	56.2	26.2	57.1	26.6	58.0	9.9
34	34	51.5	24.4	52.4	24.8	53.3	25.2	54.2	25.7	55.1	26.1	56.0	26.5	57.0	26.9	57.9	9.8
35	35	51.2	25.0	52.1	25.4	53.0	25.9	53.9	26.3	54.8	26.7	55.7	27.2	56.6	27.6	57.5	9.7
36	36	50.8	25.9	51.7	26.3	52.6	26.8	53.5	27.2	54.4	27.7	55.2	28.1	56.1	28.6	57.0	9.6
37	37	50.3	26.8	51.2	27.2	52.1	27.7	53.0	28.2	53.9	28.6	54.7	29.1	55.6	29.6	56.5	9.5
38	38	50.3	26.9	51.2	27.3	52.0	27.8	52.9	28.3	53.8	28.8	54.7	29.2	55.6	29.7	56.4	9.4
39	39	49.9	27.6	50.7	28.1	51.6	28.6	52.5	29.1	53.4	29.6	54.2	30.1	55.1	30.5	56.0	9.3
40	40	49.4	28.5	50.2	29.0	51.1	29.5	52.0	30.0	52.8	30.5	53.7	31.0	54.6	31.5	55.4	9.2
41	41	48.9	29.3	49.7	29.8	50.6	30.3	51.5	30.8	52.3	31.4	53.2	31.9	54.0	32.4	54.9	9.1
42	42	48.9	29.4	49.7	29.9	50.6	30.4	51.4	30.9	52.3	31.4	53.1	31.9	54.0	32.4	54.9	9.0
43	43	48.3	30.2	49.2	30.7	50.0	31.3	50.9	31.8	51.7	32.3	52.6	32.9	53.4	33.4	54.3	8.9
44	44	47.8	31.0	48.6	31.6	49.5	32.1	50.3	32.7	51.2	33.2	52.0	33.8	52.8	34.3	53.7	8.8
45	45	47.4	31.7	48.2	32.2	49.1	32.8	49.9	33.3	50.7	33.9	51.6	34.4	52.4	35.0	53.2	8.7
46	46	47.3	31.9	48.1	32.4	48.9	33.0	49.7	33.6	50.6	34.1	51.4	34.7	52.2	35.2	53.1	8.6
47	47	46.7	32.7	47.5	33.3	48.3	33.8	49.1	34.4	50.0	35.0	50.8	35.6	51.6	36.1	52.4	8.5
48	48	46.1	33.5	46.9	34.1	47.7	34.7	48.5	35.3	49.4	35.9	50.2	36.4	51.0	37.0	51.8	8.4
49	49	45.8	34.0	46.6	34.6	47.4	35.1	48.2	35.7	49.0	36.3	49.8	36.9	50.6	37.5	51.4	8.3
50	50	45.5	34.3	46.3	34.9	47.1	35.5	47.9	36.1	48.7	36.7	49.5	37.3	50.3	37.9	51.1	8.2
51	51	44.9	35.1	45.7	35.7	46.5	36.3	47.3	36.9	48.1	37.6	48.9	38.2	49.6	38.8	50.4	8.1
52	52	44.3	35.9	45.1	36.5	45.9	37.1	46.6	37.8	47.4	38.4	48.2	39.0	49.0	39.6	49.7	8.0
53	53	44.1	36.2	44.8	36.8	45.6	37.4	46.4	38.1	47.2	38.7	47.9	39.3	48.7	40.0	49.5	7.9
54	54	43.7	36.6	44.4	37.3	45.2	37.9	46.0	38.6	46.7	39.2	47.5	39.9	48.3	40.5	49.0	7.8
55	55	43.0	37.4	43.8	38.1	44.5	38.7	45.3	39.4	46.0	40.0	46.8	40.7	47.5	41.3	48.3	7.7
56	56	42.4	38.1	43.1	38.8	43.8	39.5	44.6	40.1	45.3	40.8	46.1	41.5	46.8	42.2	47.6	7.6
57	57	42.2	38.5	43.0	39.0	43.7	39.6	44.5	40.3	45.2	41.0	45.9	41.6	46.7	42.3	47.4	7.5
58	58	41.7	38.9	42.4	39.6	43.1	40.2	43.9	40.9	44.6	41.6	45.3	42.3	46.1	43.0	46.8	7.4
59	59	41.0	39.6	41.7	40.3	42.4	41.0	43.2	41.7	43.9	42.4	44.6	43.1	45.3	43.8	46.0	7.3
60	60	40.3	40.3	41.0	41.0	41.7	41.7	42.4	42.4	43.1	43.1	43.8	43.8	44.5	44.5	45.3	7.2
Points	Degrees	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.
Crse.		57		58		59		60		61		62		63		64	

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																	Crs.
65		66		67		68		69		70		71		72			
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		
65.0	00.0	66.0	00.0	67.0	00.0	68.0	00.0	69.0	00.0	70.0	00.0	71.0	00.0	72.0	00.0	90	
65.0	01.1	66.0	01.2	67.0	01.2	68.0	01.2	69.0	01.2	70.0	01.2	71.0	01.2	72.0	01.3	89	
65.0	02.3	66.0	02.3	67.0	02.3	68.0	02.4	69.0	02.4	70.0	02.4	71.0	02.5	72.0	02.5	88	
64.9	03.2	65.9	03.2	66.9	03.3	67.9	03.3	68.9	03.4	69.9	03.4	70.9	03.5	71.9	03.5	74	
64.9	03.4	65.9	03.5	66.9	03.5	67.9	03.6	68.9	03.6	69.9	03.7	70.9	03.7	71.9	03.8	87	
64.8	04.5	65.8	04.6	66.8	04.7	67.8	04.7	68.8	04.8	69.8	04.9	70.8	05.0	71.8	05.0	86	
64.8	05.7	65.7	05.8	66.7	05.8	67.7	05.9	68.7	06.0	69.7	06.1	70.7	06.2	71.7	06.3	85	
64.7	06.4	65.7	06.5	66.7	06.6	67.7	06.7	68.7	06.8	69.7	06.9	70.7	07.0	71.7	07.1	72	
64.6	06.8	65.6	06.9	66.6	07.0	67.6	07.1	68.6	07.2	69.6	07.3	70.6	07.4	71.6	07.5	84	
64.5	07.9	65.5	08.0	66.5	08.2	67.5	08.3	68.5	08.4	69.5	08.5	70.5	08.7	71.5	08.8	83	
64.4	09.0	65.4	09.2	66.3	09.3	67.3	09.5	68.3	09.6	69.3	09.7	70.3	09.9	71.3	10.0	82	
64.3	09.5	65.3	09.7	66.3	09.8	67.3	10.0	68.2	10.1	69.2	10.3	70.2	10.4	71.2	10.6	72	
64.2	10.2	65.2	10.3	66.2	10.5	67.2	10.6	68.2	10.8	69.1	11.0	70.1	11.1	71.1	11.3	81	
64.0	11.3	65.0	11.5	66.0	11.6	67.0	11.8	68.0	12.0	68.9	12.2	69.9	12.3	70.9	12.5	80	
63.8	12.4	64.8	12.6	65.8	12.8	66.8	13.0	67.7	13.2	68.7	13.4	69.7	13.5	70.7	13.7	79	
63.7	12.7	64.7	12.9	65.7	13.1	66.7	13.3	67.7	13.5	68.7	13.7	69.6	13.9	70.6	14.0	7	
63.6	13.5	64.6	13.7	65.6	13.9	66.6	14.1	67.6	14.3	68.6	14.5	69.4	14.8	70.4	15.0	78	
63.3	14.6	64.3	14.8	65.3	15.1	66.3	15.3	67.3	15.5	68.2	15.7	69.2	16.0	70.2	16.2	77	
63.1	15.7	64.0	16.0	65.0	16.2	66.0	16.5	67.0	16.7	67.9	16.9	68.9	17.2	69.9	17.4	76	
63.1	15.8	64.0	16.0	65.0	16.3	66.0	16.5	66.9	16.8	67.9	17.0	68.9	17.3	69.8	17.5	64	
62.8	16.8	63.8	17.1	64.7	17.3	65.7	17.6	66.6	17.9	67.6	18.1	68.6	18.4	69.5	18.6	75	
62.5	17.9	63.4	18.2	64.4	18.5	65.4	18.7	66.3	19.0	67.3	19.3	68.2	19.6	69.2	19.8	74	
62.2	18.9	63.2	19.2	64.1	19.4	65.1	19.7	66.0	20.0	67.0	20.3	67.9	20.6	68.9	20.9	63	
62.2	19.0	63.1	19.3	64.1	19.6	65.0	19.9	66.0	20.2	67.0	20.5	67.9	20.8	68.9	21.1	73	
61.8	20.1	62.8	20.4	63.7	20.7	64.7	21.0	65.6	21.3	66.6	21.6	67.5	21.9	68.5	22.2	72	
61.5	21.2	62.4	21.5	63.3	21.8	64.3	22.1	65.2	22.5	66.2	22.8	67.1	23.1	68.1	23.4	71	
61.2	21.9	62.1	22.2	63.1	22.6	64.0	22.9	65.0	23.2	65.9	23.6	66.8	23.9	67.8	24.3	62	
61.1	22.2	62.0	22.6	63.0	22.9	63.9	23.3	64.8	23.6	65.8	23.9	66.7	24.3	67.7	24.6	70	
60.7	23.3	61.6	23.7	62.5	24.0	63.5	24.4	64.4	24.7	65.4	25.1	66.3	25.4	67.2	25.8	69	
60.3	24.3	61.2	24.7	62.1	25.1	63.0	25.5	64.0	25.8	64.9	26.2	65.8	26.6	66.8	27.0	68	
60.1	24.9	61.0	25.3	61.9	25.6	62.8	26.0	63.7	26.4	64.7	26.8	65.6	27.2	66.5	27.6	6	
59.8	25.4	60.8	25.8	61.7	26.2	62.6	26.6	63.5	27.0	64.4	27.4	65.4	27.7	66.3	28.1	67	
59.4	26.4	60.3	26.8	61.2	27.3	62.1	27.7	63.0	28.1	63.9	28.5	64.9	28.9	65.8	29.3	66	
58.9	27.5	59.8	27.9	60.7	28.3	61.6	28.7	62.5	29.2	63.4	29.6	64.3	30.0	65.3	30.4	65	
58.8	27.8	59.7	28.2	60.6	28.6	61.5	29.1	62.4	29.5	63.3	29.9	64.2	30.4	65.1	30.8	53	
58.4	28.5	59.3	28.9	60.2	29.4	61.1	29.8	62.0	30.2	62.9	30.7	63.8	31.1	64.7	31.6	64	
57.9	29.5	58.8	30.0	59.7	30.4	60.6	30.9	61.5	31.3	62.4	31.8	63.3	32.2	64.2	32.7	63	
57.4	30.5	58.3	31.0	59.2	31.5	60.0	31.9	60.9	32.4	61.8	32.9	62.7	33.3	63.6	33.8	62	
57.3	30.6	58.2	31.1	59.1	31.6	60.0	32.1	60.9	32.5	61.7	33.0	62.6	33.5	63.5	33.9	52	
56.9	31.5	57.7	32.0	58.6	32.5	59.5	33.0	60.3	33.5	61.2	33.9	62.1	34.4	63.0	34.9	61	
56.3	32.5	57.2	33.0	58.0	33.5	58.9	34.0	59.8	34.5	60.6	35.0	61.5	35.5	62.4	36.0	60	
55.8	33.4	56.6	33.9	57.5	34.4	58.3	35.0	59.2	35.5	60.0	36.0	60.9	36.5	61.8	37.0	53	
55.7	33.5	56.6	34.0	57.4	34.5	58.3	35.0	59.1	35.5	60.0	36.1	60.9	36.6	61.7	37.1	59	
55.1	34.4	56.0	35.0	56.8	35.5	57.7	36.0	58.5	36.6	59.4	37.1	60.2	37.6	61.1	38.2	58	
54.5	35.4	55.4	35.9	56.2	36.5	57.0	37.0	57.9	37.6	58.7	38.1	59.5	38.7	60.4	39.2	57	
54.0	36.1	54.9	36.7	55.7	37.2	56.5	37.8	57.4	38.3	58.2	38.9	59.0	39.4	59.9	40.0	5	
53.9	36.3	54.7	36.9	55.5	37.5	56.4	38.0	57.2	38.6	58.0	39.1	58.9	39.7	59.7	40.3	56	
53.2	37.3	54.1	37.9	54.9	38.4	55.7	39.0	56.5	39.6	57.3	40.2	58.2	40.7	59.0	41.3	55	
52.6	38.2	53.4	38.8	54.2	39.4	55.0	40.0	55.8	40.6	56.6	41.1	57.4	41.7	58.2	42.3	54	
52.2	38.7	53.0	39.3	53.8	39.9	54.6	40.5	55.4	41.1	56.2	41.7	57.0	42.3	57.8	42.9	43	
51.9	39.1	52.7	39.7	53.5	40.3	54.3	40.9	55.1	41.5	55.9	42.1	56.7	42.7	57.5	43.3	53	
51.2	40.0	52.0	40.6	52.8	41.2	53.6	41.9	54.4	42.5	55.2	43.1	55.9	43.7	56.7	44.3	52	
50.5	40.9	51.3	41.5	52.1	42.2	52.8	42.8	53.6	43.4	54.4	44.1	55.2	44.7	56.0	45.3	51	
50.2	41.2	51.0	41.9	51.8	42.5	52.6	43.1	53.3	43.8	54.1	44.4	54.9	45.0	55.7	45.7	42	
49.8	41.8	50.6	42.4	51.3	43.1	52.1	43.7	52.9	44.4	53.6	45.0	54.4	45.6	55.2	46.3	50	
49.1	42.6	49.8	43.3	50.6	44.0	51.3	44.6	52.1	45.3	52.8	45.9	53.6	46.6	54.3	47.2	49	
48.3	43.5	49.0	44.2	49.8	44.8	50.5	45.5	51.3	46.2	52.0	46.8	52.8	47.5	53.5	48.2	48	
48.2	43.7	48.9	44.3	49.6	45.0	50.4	45.7	51.1	46.3	51.9	47.0	52.6	47.7	53.3	48.4	44	
47.5	44.3	48.3	45.0	49.0	45.7	49.7	46.4	50.5	47.1	51.2	47.7	51.9	48.4	52.7	49.1	47	
46.8	45.2	47.5	45.8	48.2	46.5	48.9	47.2	49.6	47.9	50.4	48.6	50.1	49.3	51.8	50.0	46	
46.0	46.0	46.7	46.7	47.4	47.4	48.1	48.1	48.8	48.8	49.5	49.5	50.2	50.2	50.9	50.9	45	
Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees Points	
DISTANCE.																Crs.	

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse.		DISTANCE.																Crse.	
Points	Degrees	73		74		75		76		77		78		79		80		Points	Degrees
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		
0	0	73.0	00.0	74.0	00.0	75.0	00.0	76.0	00.0	77.0	00.0	78.0	00.0	79.0	00.0	80.0	00.0	0	0
1	1	73.0	01.3	74.0	01.3	75.0	01.3	76.0	01.3	77.0	01.3	78.0	01.4	79.0	01.4	80.0	01.4	1	1
2	2	73.0	02.5	74.0	02.6	75.0	02.6	76.0	02.7	77.0	02.7	78.0	02.7	79.0	02.8	80.0	02.8	2	2
3	3	72.9	03.6	73.9	03.6	74.9	03.7	75.9	03.7	76.9	03.8	77.9	03.8	78.9	03.9	79.9	03.9	3	3
4	4	72.9	03.8	73.9	03.9	74.9	03.9	75.9	04.0	76.9	04.0	77.9	04.1	78.9	04.1	79.9	04.2	4	4
5	5	72.8	05.1	73.8	05.2	74.8	05.2	75.8	05.3	76.8	05.4	77.8	05.4	78.8	05.5	79.8	05.6	5	5
6	6	72.7	06.4	73.7	06.4	74.7	06.5	75.7	06.6	76.7	06.7	77.7	06.8	78.7	06.9	79.7	07.0	6	6
7	7	72.6	07.2	73.6	07.3	74.6	07.4	75.6	07.4	76.6	07.5	77.6	07.6	78.6	07.7	79.6	07.8	7	7
8	8	72.6	07.6	73.6	07.7	74.6	07.8	75.6	07.9	76.6	08.0	77.6	08.2	78.6	08.3	79.6	08.4	8	8
9	9	72.5	08.9	73.4	09.0	74.4	09.1	75.4	09.3	76.4	09.4	77.4	09.5	78.4	09.6	79.4	09.7	9	9
10	10	72.3	10.2	73.3	10.3	74.3	10.4	75.3	10.6	76.3	10.7	77.2	10.9	78.2	11.0	79.2	11.1	10	10
11	11	72.2	10.7	73.2	10.9	74.2	11.0	75.2	11.1	76.2	11.3	77.2	11.4	78.1	11.6	79.1	11.7	11	11
12	12	72.1	11.4	73.1	11.6	74.1	11.7	75.1	11.9	76.1	12.0	77.0	12.2	78.0	12.4	79.0	12.5	12	12
13	13	71.9	12.7	72.9	12.8	73.9	13.0	74.8	13.2	75.8	13.4	76.8	13.5	77.8	13.7	78.8	13.9	13	13
14	14	71.7	13.9	72.6	14.1	73.6	14.3	74.6	14.5	75.6	14.7	76.6	14.9	77.5	15.1	78.5	15.3	14	14
15	15	71.6	14.2	72.6	14.4	73.6	14.6	74.5	14.8	75.5	15.0	76.5	15.2	77.5	15.4	78.5	15.6	15	15
16	16	71.4	15.2	72.4	15.4	73.4	15.6	74.3	15.8	75.3	16.0	76.3	16.2	77.3	16.4	78.3	16.6	16	16
17	17	71.1	16.4	72.1	16.6	73.1	16.9	74.1	17.1	75.0	17.3	76.0	17.5	77.0	17.8	77.9	18.0	17	17
18	18	70.8	17.7	71.8	17.9	72.8	18.1	73.7	18.4	74.7	18.6	75.7	18.9	76.7	19.1	77.6	19.4	18	18
19	19	70.8	17.7	71.8	18.0	72.8	18.2	73.7	18.5	74.7	18.7	75.7	19.0	76.6	19.2	77.6	19.4	19	19
20	20	70.5	18.9	71.5	19.2	72.4	19.4	73.4	19.7	74.4	19.9	75.3	20.2	76.3	20.4	77.3	20.7	20	20
21	21	70.2	20.1	71.1	20.4	72.1	20.7	73.1	20.9	74.0	21.2	75.0	21.5	75.9	21.8	76.9	22.1	21	21
22	22	69.9	21.2	70.8	21.5	71.8	21.8	72.7	22.1	73.7	22.4	74.6	22.6	75.6	22.9	76.6	23.2	22	22
23	23	69.8	21.3	70.8	21.6	71.7	21.9	72.7	22.2	73.6	22.5	74.6	22.8	75.5	23.1	76.5	23.4	23	23
24	24	69.4	22.6	70.4	22.9	71.3	23.2	72.3	23.5	73.2	23.8	74.2	24.1	75.1	24.4	76.1	24.7	24	24
25	25	69.0	23.8	70.0	24.1	70.9	24.4	71.9	24.7	72.8	25.1	73.8	25.4	74.7	25.7	75.6	26.0	25	25
26	26	68.7	24.6	69.7	24.9	70.6	25.3	71.6	25.6	72.5	25.9	73.4	26.3	74.4	26.6	75.3	27.0	26	26
27	27	68.6	25.0	69.5	25.3	70.5	25.7	71.4	26.0	72.4	26.3	73.3	26.7	74.2	27.0	75.2	27.4	27	27
28	28	68.2	26.2	69.1	26.5	70.0	26.9	71.0	27.2	71.9	27.6	72.8	28.0	73.8	28.3	74.7	28.7	28	28
29	29	67.7	27.3	68.6	27.7	69.5	28.1	70.5	28.5	71.4	28.8	72.3	29.2	73.2	29.6	74.2	30.0	29	29
30	30	67.4	27.9	68.4	28.3	69.3	28.7	70.2	29.1	71.1	29.5	72.1	29.8	73.0	30.2	73.9	30.6	30	30
31	31	67.2	28.5	68.1	28.9	69.0	29.3	70.0	29.7	70.9	30.1	71.8	30.5	72.7	30.9	73.6	31.3	31	31
32	32	66.7	29.7	67.6	30.1	68.5	30.5	69.4	30.9	70.3	31.3	71.3	31.7	72.2	32.1	73.1	32.5	32	32
33	33	66.2	30.9	67.1	31.3	68.0	31.7	68.9	32.1	69.8	32.5	70.7	33.0	71.6	33.4	72.5	33.8	33	33
34	34	66.0	31.2	66.9	31.6	67.8	32.1	68.7	32.5	69.6	32.9	70.5	33.3	71.4	33.8	72.3	34.2	34	34
35	35	65.6	32.0	66.5	32.4	67.4	32.9	68.3	33.3	69.2	33.8	70.1	34.2	71.0	34.6	71.9	35.1	35	35
36	36	65.0	33.1	65.9	33.6	66.8	34.0	67.7	34.5	68.6	35.0	69.5	35.4	70.4	35.9	71.3	36.3	36	36
37	37	64.5	34.3	65.3	34.7	66.2	35.2	67.1	35.7	68.0	36.1	68.9	36.6	69.8	37.1	70.6	37.6	37	37
38	38	64.4	34.4	65.3	34.9	66.1	35.4	67.0	35.8	67.9	36.3	68.8	36.8	69.7	37.2	70.6	37.7	38	38
39	39	63.8	35.4	64.7	35.9	65.6	36.4	66.5	36.8	67.3	37.3	68.2	37.8	69.1	38.3	70.0	38.8	39	39
40	40	63.2	36.5	64.1	37.0	65.0	37.5	65.8	38.0	66.7	38.5	67.5	39.0	68.4	39.5	69.3	40.0	40	40
41	41	62.6	37.5	63.5	38.0	64.3	38.6	65.2	39.1	66.0	39.6	66.9	40.1	67.8	40.6	68.6	41.1	41	41
42	42	62.6	37.6	63.4	38.1	64.3	38.6	65.1	39.1	66.0	39.7	66.9	40.2	67.7	40.7	68.6	41.2	42	42
43	43	61.9	38.7	62.8	39.2	63.6	39.7	64.5	40.3	65.3	40.8	66.1	41.3	67.0	41.9	67.8	42.4	43	43
44	44	61.2	39.8	62.1	40.3	62.9	40.8	63.7	41.4	64.6	41.9	65.4	42.5	66.3	43.0	67.1	43.6	44	44
45	45	60.7	40.6	61.5	41.1	62.4	41.7	63.2	42.2	64.0	42.8	64.9	43.3	65.7	43.9	66.5	44.4	45	45
46	46	60.5	40.8	61.3	41.4	62.2	41.9	63.0	42.5	63.8	43.1	64.7	43.6	65.5	44.2	66.3	44.7	46	46
47	47	59.8	41.9	60.6	42.4	61.4	43.0	62.3	43.6	63.1	44.2	63.9	44.7	64.7	45.3	65.5	45.9	47	47
48	48	59.1	42.9	59.9	43.5	60.7	44.1	61.5	44.7	62.3	45.3	63.1	45.8	63.9	46.4	64.7	47.0	48	48
49	49	58.6	43.5	59.4	44.1	60.2	44.7	61.0	45.3	61.8	45.9	62.7	46.5	63.5	47.1	64.3	47.7	49	49
50	50	58.3	43.9	59.1	44.5	59.9	45.1	60.7	45.7	61.5	46.3	62.3	46.9	63.1	47.5	63.9	48.1	50	50
51	51	57.5	44.9	58.3	45.6	59.1	46.2	59.9	46.8	60.7	47.4	61.5	48.0	62.3	48.6	63.0	49.3	51	51
52	52	56.7	45.9	57.5	46.6	58.3	47.2	59.1	47.8	59.8	48.5	60.6	49.1	61.4	49.7	62.2	50.3	52	52
53	53	56.4	46.3	57.2	46.9	58.0	47.6	58.7	48.2	59.5	48.8	60.3	49.5	61.1	50.1	61.8	50.8	53	53
54	54	55.9	46.9	56.7	47.6	57.5	48.2	58.2	48.9	59.0	49.5	59.8	50.1	60.5	50.8	61.3	51.4	54	54
55	55	55.1	47.9	55.8	48.5	56.6	49.2	57.4	49.9	58.1	50.5	58.9	51.2	59.6	51.8	60.4	52.5	55	55
56	56	54.2	48.8	55.0	49.5	55.7	50.2	56.5	50.9	57.2	51.5	58.0	52.2	58.7	52.9	59.5	53.5	56	56
57	57	54.1	49.0	54.8	49.7	55.6	50.4	56.3	51.0	57.1	51.7	57.8	52.4	58.5	53.1	59.3	53.7	57	57
58	58	53.4	49.8	54.1	50.5	54.9	51.1	55.6	51.8	56.3	52.5	57.0	53.2	57.8	53.9	58.5	54.6	58	58
59	59	52.5	50.7	53.2	51.4	54.0	52.1	54.7	52.8	55.4	53.5	56.1	54.2	56.8	54.9	57.5	55.6	59	59
60	60	51.6	51.6	52.3	52.3	53.0	53.0	53.7	53.7	54.4	54.4	55.2	55.2	55.9	55.9	56.6	56.6	60	60
Crse.	Points Degrees	DISTANCE.																Crse.	
		73		74		75		76		77		78		79		80			
		Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.		

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																		Crse.
81		82		83		84		85		86		87		88		Degree	Points	
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.			
81.0	00.0	82.0	00.0	83.0	00.0	84.0	00.0	85.0	00.0	86.0	00.0	87.0	00.0	88.0	00.0	90	8	
81.0	01.4	82.0	01.4	83.0	01.4	84.0	01.5	85.0	01.5	86.0	01.5	87.0	01.5	88.0	01.5	89	8	
81.0	02.8	82.0	02.9	83.0	02.9	84.0	02.9	85.0	03.0	86.0	03.0	87.0	03.0	88.0	03.1	88	7	
80.9	04.0	81.9	04.0	82.9	04.1	83.9	04.1	84.9	04.2	85.9	04.2	86.9	04.3	87.9	04.3	78	7	
80.9	04.2	81.9	04.3	82.9	04.3	83.9	04.4	84.9	04.4	85.9	04.5	86.9	04.6	87.9	04.6	87	7	
80.8	05.7	81.8	05.7	82.8	05.8	83.8	05.9	84.8	05.9	85.8	06.0	86.8	06.1	87.8	06.1	86	6	
80.7	07.1	81.7	07.1	82.7	07.2	83.7	07.3	84.7	07.4	85.7	07.5	86.7	07.6	87.7	07.7	85	5	
80.6	07.9	81.6	08.0	82.6	08.1	83.6	08.2	84.6	08.3	85.6	08.4	86.6	08.5	87.6	08.6	74	5	
80.6	08.5	81.6	08.6	82.6	08.7	83.6	08.8	84.6	08.9	85.6	09.0	86.6	09.1	87.6	09.2	84	4	
80.4	09.9	81.4	10.0	82.4	10.1	83.4	10.2	84.4	10.4	85.4	10.5	86.4	10.6	87.4	10.7	83	3	
80.2	11.3	81.2	11.4	82.2	11.6	83.2	11.7	84.2	11.8	85.2	12.0	86.2	12.1	87.2	12.2	82	2	
80.1	11.9	81.1	12.0	82.1	12.2	83.1	12.3	84.1	12.5	85.1	12.6	86.1	12.8	87.0	12.9	74	1	
80.0	12.7	81.0	12.8	82.0	13.0	83.0	13.1	84.0	13.3	84.9	13.5	85.9	13.6	86.9	13.8	81	0	
79.8	14.1	80.8	14.2	81.7	14.4	82.7	14.6	83.7	14.8	84.7	14.9	85.7	15.1	86.7	15.3	80	0	
79.5	15.5	80.5	15.6	81.5	15.8	82.5	16.0	83.4	16.2	84.4	16.4	85.4	16.6	86.4	16.8	79	0	
79.4	15.8	80.4	16.0	81.4	16.2	82.4	16.4	83.4	16.6	84.3	16.8	85.3	17.0	86.3	17.2	78	0	
79.2	16.8	80.2	17.0	81.2	17.3	82.2	17.5	83.1	17.7	84.1	17.9	85.1	18.1	86.1	18.3	77	0	
78.9	18.2	79.9	18.4	80.9	18.7	81.8	18.9	82.8	19.1	83.8	19.3	84.8	19.6	85.7	19.8	77	0	
78.6	19.6	79.6	19.8	80.5	20.1	81.5	20.3	82.5	20.6	83.4	20.8	84.4	21.0	85.4	21.3	76	0	
78.6	19.7	79.5	19.9	80.5	20.2	81.5	20.4	82.5	20.7	83.4	20.9	84.4	21.1	85.4	21.4	64	0	
78.2	21.0	79.2	21.2	80.2	21.5	81.1	21.7	82.1	22.0	83.1	22.3	84.0	22.5	85.0	22.8	75	0	
77.9	22.3	78.8	22.6	79.8	22.9	80.7	23.2	81.7	23.4	82.7	23.7	83.6	24.0	84.6	24.3	74	0	
77.5	23.5	78.5	23.8	79.4	24.1	80.4	24.4	81.3	24.7	82.3	25.0	83.3	25.3	84.2	25.5	63	0	
77.5	23.7	78.4	24.0	79.4	24.3	80.3	24.6	81.3	24.9	82.2	25.1	83.2	25.4	84.2	25.7	73	0	
77.0	25.0	78.0	25.3	78.9	25.6	79.9	26.0	80.8	26.3	81.8	26.6	82.7	26.9	83.7	27.2	72	0	
76.6	26.4	77.5	26.7	78.5	27.0	79.4	27.3	80.4	27.7	81.3	28.0	82.3	28.3	83.2	28.7	71	0	
76.3	27.3	77.2	27.6	78.1	28.0	79.1	28.3	80.0	28.6	81.0	29.0	81.9	29.3	82.9	29.6	64	0	
76.1	27.7	77.1	28.0	78.0	28.4	78.9	28.7	79.9	29.1	80.8	29.4	81.8	29.8	82.7	30.1	70	0	
75.6	29.0	76.6	29.4	77.5	29.7	78.4	30.1	79.4	30.5	80.3	30.8	81.2	31.2	82.2	31.5	69	0	
75.1	30.3	76.0	30.7	77.0	31.1	77.9	31.5	78.8	31.8	79.7	32.2	80.7	32.6	81.6	33.0	68	0	
74.8	31.0	75.8	31.4	76.7	31.8	77.6	32.1	78.5	32.5	79.5	32.9	80.4	33.3	81.3	33.7	6	0	
74.6	31.6	75.5	32.0	76.4	32.4	77.3	32.8	78.2	33.2	79.2	33.6	80.1	34.0	81.0	34.4	67	0	
74.0	32.9	74.9	33.4	75.8	33.8	76.7	34.2	77.7	34.6	78.6	35.0	79.5	35.4	80.4	35.8	66	0	
73.4	34.2	74.3	34.7	75.2	35.1	76.1	35.5	77.0	35.9	77.9	36.3	78.8	36.8	79.8	37.2	65	0	
73.2	34.6	74.1	35.1	75.0	35.5	75.9	35.9	76.8	36.3	77.7	36.8	78.6	37.2	79.6	37.6	54	0	
72.8	35.5	73.7	35.9	74.6	36.4	75.5	36.8	76.4	37.3	77.3	37.7	78.2	38.1	79.1	38.6	64	0	
72.2	36.8	73.1	37.2	74.0	37.7	74.8	38.1	75.7	38.6	76.6	39.0	77.5	39.5	78.4	40.0	63	0	
71.5	38.0	72.4	38.5	73.3	39.0	74.2	39.4	75.1	39.9	75.9	40.4	76.8	40.8	77.7	41.3	62	0	
71.4	38.2	72.3	38.7	73.2	39.1	74.1	39.6	75.0	40.1	75.8	40.5	76.7	41.0	77.6	41.5	53	0	
70.8	39.3	71.7	39.8	72.6	40.2	73.5	40.7	74.3	41.2	75.2	41.7	76.1	42.2	77.0	42.7	61	0	
70.1	40.5	71.0	41.0	71.9	41.5	72.7	42.0	73.6	42.5	74.5	43.0	75.3	43.5	76.2	44.0	60	0	
69.5	41.6	70.3	42.2	71.2	42.7	72.0	43.2	72.9	43.7	73.8	44.2	74.6	44.7	75.5	45.2	53	0	
69.4	41.7	70.3	42.2	71.1	42.7	72.0	43.3	72.9	43.8	73.7	44.3	74.6	44.8	75.4	45.3	59	0	
68.7	42.9	69.5	43.5	70.4	44.0	71.2	44.5	72.1	45.0	72.9	45.6	73.8	46.1	74.6	46.6	58	0	
67.9	44.1	68.8	44.7	69.6	45.2	70.4	45.7	71.3	46.3	72.1	46.8	73.0	47.4	73.8	47.9	57	0	
67.3	45.0	68.2	45.6	69.0	46.1	69.8	46.7	70.7	47.2	71.5	47.8	72.3	48.3	73.2	48.9	5	0	
67.2	45.3	68.0	45.9	68.8	46.4	69.6	47.0	70.5	47.5	71.3	48.1	72.1	48.6	73.0	49.2	56	0	
66.4	46.5	67.2	47.0	68.0	47.6	68.8	48.2	69.6	48.8	70.4	49.3	71.3	49.9	72.1	50.5	55	0	
65.5	47.6	66.3	48.2	67.1	48.8	68.0	49.4	68.8	50.0	69.6	50.5	70.4	51.1	71.2	51.7	54	0	
65.1	48.3	65.9	48.8	66.7	49.4	67.5	50.0	68.3	50.6	69.1	51.2	69.9	51.8	70.7	52.4	44	0	
64.7	48.7	65.5	49.3	66.3	50.0	67.1	50.6	67.9	51.2	68.7	51.8	69.6	52.4	70.3	53.0	53	0	
63.8	49.9	64.6	50.5	65.4	51.1	66.2	51.7	67.0	52.3	67.8	52.9	68.6	53.6	69.3	54.2	52	0	
62.9	51.0	63.7	51.6	64.5	52.2	65.3	52.9	66.1	53.5	66.8	54.1	67.6	54.8	68.4	55.4	51	0	
62.6	51.4	63.4	52.0	64.2	52.7	64.9	53.3	65.7	53.9	66.5	54.6	67.3	55.2	68.0	55.8	44	0	
62.0	52.1	62.8	52.7	63.6	53.4	64.3	54.0	65.1	54.6	65.9	55.3	66.6	55.9	67.4	56.6	50	0	
61.1	53.1	61.9	53.8	62.6	54.5	63.4	55.1	64.2	55.8	64.9	56.4	65.7	57.1	66.4	57.7	49	0	
60.2	54.2	60.9	54.9	61.7	55.5	62.4	56.2	63.2	56.9	63.9	57.5	64.7	58.2	65.4	58.9	48	0	
60.0	54.4	60.8	55.1	61.5	55.7	62.2	56.4	63.0	57.1	63.7	57.8	64.5	58.4	65.2	59.1	44	0	
59.2	55.2	60.0	55.9	60.7	56.6	61.4	57.3	62.2	58.0	62.9	58.7	63.6	59.3	64.4	60.0	47	0	
58.3	56.3	59.0	57.0	59.7	57.7	60.4	58.4	61.1	59.0	61.9	59.7	62.6	60.4	63.3	61.1	46	0	
57.3	57.3	58.0	58.0	58.7	58.7	59.4	59.4	60.1	60.1	60.8	60.8	61.5	61.5	62.2	62.2	45	0	
Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degree	Points	
81	82	83	84	85	86	87	88										Crse.	

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse.		DISTANCE.																Crse.	
Points	Degrees	89		90		91		92		93		94		95		96		Points	Degrees
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		
0	0	89.0	00.0	90.0	00.0	91.0	00.0	92.0	00.0	93.0	00.0	94.0	00.0	95.0	00.0	96.0	00.0	0	0
0	1	89.0	01.6	90.0	01.6	91.0	01.6	92.0	01.6	93.0	01.6	94.0	01.6	95.0	01.7	96.0	01.7	0	1
0	2	88.9	03.1	89.9	03.1	90.9	03.2	91.9	03.2	92.9	03.2	93.9	03.3	94.9	03.3	95.9	03.4	0	2
0	3	88.9	04.4	89.9	04.4	90.9	04.5	91.9	04.5	92.9	04.6	93.9	04.6	94.9	04.7	95.9	04.7	0	3
0	4	88.8	05.6	89.8	05.6	90.8	05.7	91.8	05.7	92.8	05.8	93.8	05.8	94.8	05.9	95.8	05.9	0	4
0	5	88.7	07.8	89.7	07.8	90.7	07.9	91.7	08.0	92.7	08.1	93.7	08.2	94.7	08.3	95.7	08.4	0	5
0	6	88.6	08.7	89.6	08.8	90.6	08.9	91.6	09.0	92.6	09.1	93.5	09.2	94.5	09.3	95.5	09.4	0	6
0	7	88.5	09.3	89.5	09.4	90.5	09.5	91.5	09.6	92.5	09.7	93.5	09.8	94.5	09.9	95.5	10.0	0	7
0	8	88.3	10.8	89.3	11.0	90.3	11.1	91.3	11.2	92.3	11.3	93.3	11.5	94.3	11.6	95.3	11.7	0	8
0	9	88.1	12.4	89.1	12.5	90.1	12.7	91.1	12.8	92.1	12.9	93.1	13.1	94.1	13.2	95.1	13.4	0	9
0	10	88.0	13.1	89.0	13.2	90.0	13.3	91.0	13.5	92.0	13.6	93.0	13.8	94.0	13.9	95.0	14.1	0	10
0	11	87.9	13.9	88.9	14.1	89.9	14.2	90.9	14.4	91.9	14.5	92.8	14.7	93.8	14.9	94.8	15.0	0	11
0	12	87.6	15.5	88.6	15.6	89.6	15.8	90.6	16.0	91.6	16.1	92.6	16.3	93.6	16.5	94.5	16.7	0	12
0	13	87.4	17.0	88.3	17.2	89.3	17.4	90.3	17.6	91.3	17.7	92.3	17.9	93.3	18.1	94.2	18.3	0	13
0	14	87.3	17.4	88.3	17.6	89.2	17.8	90.2	18.0	91.2	18.1	92.2	18.3	93.2	18.5	94.2	18.7	0	14
0	15	87.1	18.5	88.0	18.7	89.0	18.9	90.0	19.1	91.0	19.3	91.9	19.5	92.9	19.8	93.9	20.0	0	15
0	16	86.7	20.0	87.7	20.2	88.7	20.5	89.6	20.7	90.6	20.9	91.6	21.1	92.6	21.4	93.5	21.6	0	16
0	17	86.4	21.5	87.3	21.8	88.3	22.0	89.3	22.3	90.2	22.5	91.2	22.7	92.2	23.0	93.1	23.2	0	17
0	18	86.3	21.6	87.3	21.9	88.3	22.1	89.2	22.4	90.2	22.6	91.2	22.8	92.2	23.1	93.1	23.3	0	18
0	19	86.0	23.0	86.9	23.3	87.9	23.6	88.9	23.8	89.8	24.1	90.8	24.3	91.8	24.6	92.7	24.8	0	19
0	20	85.6	24.5	86.5	24.8	87.5	25.1	88.4	25.4	89.4	25.6	90.4	25.9	91.3	26.2	92.3	26.5	0	20
0	21	85.2	25.8	86.1	26.1	87.1	26.4	88.0	26.7	89.0	27.0	90.0	27.3	90.9	27.6	91.9	27.9	0	21
0	22	85.1	26.0	86.1	26.3	87.0	26.6	88.0	26.9	88.9	27.2	89.9	27.5	90.8	27.8	91.8	28.1	0	22
0	23	84.6	27.5	85.6	27.8	86.5	28.1	87.5	28.4	88.4	28.7	89.4	29.0	90.4	29.4	91.3	29.7	0	23
0	24	84.2	29.0	85.1	29.3	86.0	29.6	87.0	30.0	87.9	30.3	88.9	30.6	89.8	30.9	90.8	31.3	0	24
0	25	83.8	30.0	84.7	30.3	85.7	30.7	86.6	31.0	87.6	31.3	88.5	31.7	89.4	32.0	90.4	32.3	0	25
0	26	83.6	30.4	84.6	30.8	85.5	31.1	86.5	31.5	87.4	31.8	88.3	32.1	89.3	32.5	90.3	32.8	0	26
0	27	83.1	31.9	84.0	32.3	85.0	32.6	85.9	33.0	86.8	33.3	87.8	33.7	88.7	34.0	89.6	34.4	0	27
0	28	82.5	33.3	83.4	33.7	84.4	34.1	85.3	34.5	86.2	34.8	87.2	35.2	88.1	35.6	89.0	36.0	0	28
0	29	82.2	34.1	83.1	34.4	84.1	34.8	85.0	35.2	85.9	35.6	86.8	36.0	87.8	36.4	88.7	36.7	0	29
0	30	81.9	34.8	82.8	35.2	83.8	35.6	84.7	35.9	85.6	36.3	86.5	36.7	87.4	37.1	88.4	37.5	0	30
0	31	81.3	36.2	82.2	36.6	83.1	37.0	84.0	37.4	85.0	37.8	85.9	38.2	86.8	38.6	87.7	39.0	0	31
0	32	80.7	37.6	81.6	38.0	82.5	38.5	83.4	38.9	84.3	39.3	85.2	39.7	86.1	40.1	87.0	40.6	0	32
0	33	80.5	38.1	81.4	38.5	82.3	38.9	83.2	39.3	84.1	39.8	85.0	40.2	85.9	40.6	86.8	41.0	0	33
0	34	80.0	39.0	80.9	39.5	81.8	39.9	82.7	40.3	83.6	40.8	84.5	41.2	85.4	41.6	86.3	42.1	0	34
0	35	79.3	40.4	80.2	40.9	81.1	41.3	82.0	41.8	82.9	42.2	83.8	42.7	84.6	43.1	85.5	43.6	0	35
0	36	78.6	41.8	79.5	42.3	80.3	42.7	81.2	43.2	82.1	43.7	83.0	44.1	83.9	44.6	84.8	45.1	0	36
0	37	78.5	42.0	79.4	42.4	80.3	42.9	81.1	43.4	82.0	43.8	82.9	44.3	83.8	44.8	84.7	45.3	0	37
0	38	77.8	43.1	78.7	43.6	79.6	44.1	80.5	44.6	81.3	45.1	82.2	45.6	83.1	46.1	84.0	46.5	0	38
0	39	77.1	44.5	77.9	45.0	78.8	45.5	79.7	46.0	80.5	46.5	81.4	47.0	82.3	47.5	83.1	48.0	0	39
0	40	76.3	45.8	77.2	46.3	78.1	46.8	78.9	47.3	79.8	47.8	80.6	48.3	81.5	48.8	82.3	49.4	0	40
0	41	76.3	45.8	77.1	46.4	78.0	46.9	78.9	47.4	79.7	47.9	80.6	48.4	81.4	48.9	82.3	49.4	0	41
0	42	75.5	47.2	76.3	47.7	77.2	48.2	78.0	48.8	78.9	49.3	79.7	49.8	80.6	50.3	81.4	50.9	0	42
0	43	74.6	48.5	75.5	49.0	76.3	49.6	77.2	50.1	78.0	50.7	78.8	51.2	79.7	51.7	80.5	52.3	0	43
0	44	74.0	49.4	74.8	50.0	75.7	50.6	76.5	51.1	77.3	51.7	78.2	52.2	79.0	52.8	79.8	53.3	0	44
0	45	73.8	49.8	74.6	50.3	75.4	50.9	76.3	51.4	77.1	52.0	77.9	52.6	78.8	53.1	79.6	53.7	0	45
0	46	72.9	51.0	73.7	51.6	74.5	52.2	75.4	52.8	76.2	53.3	77.0	53.9	77.8	54.5	78.6	55.1	0	46
0	47	72.0	52.3	72.8	52.9	73.6	53.5	74.4	54.1	75.2	54.7	76.0	55.3	76.9	55.8	77.7	56.4	0	47
0	48	71.5	53.0	72.3	53.6	73.1	54.2	73.9	54.8	74.7	55.4	75.5	56.0	76.3	56.6	77.1	57.2	0	48
0	49	71.1	53.6	71.9	54.2	72.7	54.8	73.5	55.4	74.3	56.0	75.1	56.6	75.9	57.2	76.7	57.8	0	49
0	50	70.1	54.8	70.9	55.4	71.7	56.0	72.5	56.6	73.3	57.3	74.1	57.9	74.9	58.5	75.6	59.1	0	50
0	51	69.2	56.0	69.9	56.6	70.7	57.3	71.5	57.9	72.3	58.5	73.1	59.2	73.8	59.8	74.6	60.4	0	51
0	52	68.8	56.5	69.6	57.1	70.3	57.7	71.1	58.4	71.9	59.0	72.7	59.6	73.4	60.3	74.2	60.9	0	52
0	53	68.2	57.2	68.9	57.9	69.7	58.5	70.5	59.1	71.2	59.8	72.0	60.4	72.8	61.1	73.5	61.7	0	53
0	54	67.2	58.4	67.9	59.0	68.7	59.7	69.4	60.4	70.2	61.0	70.9	61.7	71.7	62.3	72.5	63.0	0	54
0	55	66.1	59.6	66.7	60.2	67.6	60.9	68.4	61.6	69.1	62.2	69.9	62.9	70.6	63.6	71.3	64.3	0	55
0	56	65.9	59.8	66.7	60.4	67.4	61.1	68.2	61.8	68.9	62.5	69.6	63.1	70.4	63.8	71.1	64.5	0	56
0	57	65.1	60.7	65.8	61.4	66.6	62.1	67.3	62.7	68.0	63.4	68.7	64.1	69.5	64.8	70.2	65.5	0	57
0	58	64.0	61.8	64.7	62.5	65.5	63.2	66.2	63.9	66.9	64.6	67.6	65.3	68.3	66.0	69.1	66.7	0	58
0	59	62.9	62.9	63.6	64.3	64.3	64.3	65.1	65.1	65.8	66.5	66.5	67.2	67.2	67.2	67.2	67.2	0	59
0	60	62.9	62.9	63.6	64.3	64.3	64.3	65.1	65.1	65.8	66.5	66.5	67.2	67.2	67.2	67.2	67.2	0	60
0	61	62.9	62.9	63.6	64.3	64.3	64.3	65.1	65.1	65.8	66.5	66.5	67.2	67.2	67.2	67.2	67.2	0	61
0	62	62.9	62.9	63.6	64.3	64.3	64.3												

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.														Case
97		98		99		100		101		102		103		Degrees Points
Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	
97.0	00.0	98.0	00.0	99.0	00.0	100.0	00.0	101.0	00.0	102.0	00.0	103.0	00.0	90
97.0	01.7	98.0	01.7	99.0	01.7	100.0	01.7	101.0	01.8	102.0	01.8	103.0	01.8	89
96.9	03.4	97.9	03.4	98.9	03.5	99.9	03.5	100.9	03.5	101.9	03.6	102.9	03.6	88
96.9	04.8	97.9	04.8	98.9	04.9	99.9	04.9	100.9	05.0	101.9	05.0	102.9	05.1	73
96.9	05.1	97.9	05.1	98.9	05.2	99.9	05.2	100.9	05.3	101.9	05.3	102.9	05.4	87
96.8	06.8	97.8	06.8	98.8	06.9	99.8	07.0	100.8	07.0	101.8	07.1	102.7	07.2	86
96.6	08.5	97.6	08.5	98.6	08.6	99.6	08.7	100.6	08.8	101.6	08.9	102.6	09.0	85
96.5	09.5	97.5	09.6	98.5	09.7	99.5	09.8	100.5	09.9	101.5	10.0	102.5	10.1	71
96.5	10.1	97.5	10.2	98.5	10.3	99.5	10.5	100.4	10.6	101.4	10.7	102.4	10.8	84
96.3	11.8	97.3	11.9	98.3	12.1	99.3	12.2	100.2	12.3	101.2	12.4	102.2	12.6	83
96.1	13.5	97.0	13.6	98.0	13.8	99.0	13.9	100.0	14.1	101.0	14.2	102.0	14.3	82
95.9	14.2	96.9	14.4	97.9	14.5	98.9	14.7	99.9	14.8	100.9	15.0	101.9	15.1	74
95.8	15.2	96.8	15.3	97.8	15.5	98.8	15.6	99.8	15.8	100.7	16.0	101.7	16.1	81
95.5	16.8	96.5	17.0	97.5	17.2	98.5	17.4	99.5	17.5	100.5	17.7	101.4	17.9	80
95.2	18.5	96.2	18.7	97.2	18.9	98.2	19.1	99.1	19.3	100.1	19.5	101.1	19.7	79
95.1	18.9	96.1	19.1	97.1	19.3	98.1	19.5	99.1	19.7	100.0	19.9	101.0	20.1	7
94.9	20.2	95.9	20.4	96.8	20.6	97.8	20.8	98.8	21.0	99.8	21.2	100.7	21.4	78
94.5	21.8	95.5	22.0	96.5	22.3	97.4	22.5	98.4	22.7	99.4	22.9	100.4	23.2	77
94.1	23.5	95.1	23.7	96.1	24.0	97.0	24.2	98.0	24.4	99.0	24.7	99.9	24.9	76
94.1	23.6	95.1	23.8	96.0	24.1	97.0	24.3	98.0	24.5	98.9	24.8	99.9	25.0	64
93.7	25.1	94.7	25.4	95.6	25.6	96.6	25.9	97.6	26.1	98.5	26.4	99.5	26.7	75
93.2	26.7	94.2	27.0	95.2	27.3	96.1	27.6	97.1	27.8	98.0	28.1	99.0	28.4	74
92.8	28.2	93.8	28.4	94.7	28.7	95.7	29.0	96.7	29.3	97.6	29.6	98.6	29.9	64
92.8	28.4	93.7	28.7	94.7	28.9	95.6	29.2	96.6	29.5	97.5	29.8	98.5	30.1	73
92.3	30.0	93.2	30.3	94.2	30.6	95.1	30.9	96.1	31.2	97.0	31.5	98.0	31.8	72
91.7	31.6	92.7	31.9	93.6	32.2	94.6	32.6	95.5	32.9	96.4	33.2	97.4	33.5	71
91.3	32.7	92.3	33.0	93.2	33.4	94.2	33.7	95.1	34.0	96.0	34.4	97.0	34.7	62
91.2	33.2	92.1	33.5	93.0	33.9	94.0	34.2	94.9	34.5	95.8	34.9	96.8	35.2	70
90.6	34.8	91.5	35.1	92.4	35.5	93.4	35.8	94.3	36.2	95.2	36.6	96.2	36.9	69
89.9	36.3	90.9	36.7	91.8	37.1	92.7	37.5	93.6	37.8	94.6	38.2	95.5	38.6	68
89.6	37.1	90.5	37.5	91.5	37.9	92.4	38.3	93.3	38.7	94.2	39.0	95.2	39.4	6
89.3	37.9	90.2	38.3	91.1	38.7	92.1	39.1	93.0	39.5	93.9	39.9	94.8	40.2	67
88.6	39.5	89.5	39.9	90.4	40.3	91.4	40.7	92.3	41.1	93.2	41.5	94.1	41.9	66
87.9	41.0	88.8	41.4	89.7	41.8	90.6	42.3	91.5	42.7	92.4	43.1	93.3	43.5	65
87.7	41.5	88.6	41.9	89.5	42.3	90.4	42.8	91.3	43.2	92.2	43.6	93.1	44.0	54
87.2	42.5	88.1	43.0	89.0	43.4	89.9	43.8	90.8	44.3	91.7	44.7	92.6	45.2	64
86.4	44.0	87.3	44.5	88.2	44.9	89.1	45.4	90.0	45.9	90.9	46.3	91.8	46.8	63
85.6	45.5	86.5	46.0	87.4	46.5	88.3	46.9	89.2	47.4	90.1	47.9	91.0	48.4	62
85.5	45.7	86.4	46.2	87.3	46.7	88.2	47.1	89.1	47.6	90.0	48.1	90.8	48.6	54
84.8	47.0	85.7	47.5	86.6	48.0	87.5	48.5	88.3	49.0	89.2	49.5	90.1	49.9	61
84.0	48.5	84.9	49.0	85.7	49.5	86.6	50.0	87.5	50.5	88.3	51.0	89.2	51.5	60
83.2	49.9	84.1	50.4	84.9	50.9	85.8	51.4	86.6	51.9	87.5	52.4	88.3	53.0	51
83.1	50.0	84.0	50.5	84.9	51.0	85.7	51.5	86.6	52.0	87.4	52.5	88.3	53.0	59
82.3	51.4	83.1	51.9	84.0	52.5	84.8	53.0	85.7	53.5	86.5	54.1	87.3	54.6	58
81.4	52.8	82.2	53.4	83.0	53.9	83.9	54.5	84.7	55.0	85.5	55.6	86.4	56.1	57
80.7	53.9	81.5	54.4	82.3	55.0	83.1	55.6	84.0	56.1	84.8	56.7	85.6	57.2	5
80.4	54.2	81.2	54.8	82.1	55.4	82.9	55.9	83.7	56.5	84.6	57.0	85.4	57.6	56
79.5	55.6	80.3	56.2	81.1	56.8	81.9	57.4	82.7	57.9	83.6	58.5	84.4	59.1	55
78.5	57.0	79.3	57.6	80.1	58.2	80.9	58.8	81.7	59.4	82.5	60.0	83.3	60.5	54
77.9	57.8	78.7	58.4	79.5	59.0	80.3	59.6	81.1	60.2	81.9	60.8	82.7	61.4	44
77.5	58.4	78.3	59.0	79.1	59.6	79.9	60.2	80.7	60.8	81.5	61.4	82.3	62.0	53
76.4	59.7	77.2	60.3	78.0	61.0	78.8	61.6	79.6	62.2	80.4	62.8	81.2	63.4	52
75.4	61.0	76.2	61.7	77.0	62.3	77.7	62.9	78.5	63.6	79.3	64.2	80.0	64.8	51
75.0	61.5	75.8	62.2	76.5	62.8	77.3	63.4	78.1	64.1	78.8	64.7	79.6	65.3	43
74.3	62.4	75.1	63.0	75.8	63.6	76.6	64.3	77.4	64.9	78.1	65.6	78.9	66.2	50
73.2	63.6	74.0	64.3	74.7	64.9	75.5	65.6	76.2	66.3	77.0	66.9	77.7	67.6	49
72.1	64.9	72.8	65.6	73.6	66.2	74.3	66.9	75.1	67.6	75.8	68.3	76.5	68.9	48
71.9	65.1	72.6	65.8	73.4	66.5	74.1	67.2	74.8	67.8	75.6	68.5	76.3	69.2	44
70.9	66.2	71.7	66.8	72.4	67.5	73.1	68.2	73.9	68.9	74.6	69.6	75.3	70.2	47
69.8	67.4	70.5	68.1	71.2	68.8	71.9	69.5	72.7	70.2	73.4	70.9	74.1	71.5	46
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	45
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	44
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	43
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	42
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	41
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	40
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	39
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	38
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	37
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	36
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	35
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	34
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	33
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	32
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	31
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	30
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	29
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	28
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	27
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	26
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	25
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	24
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	23
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	22
69.6	68.6	69.3	69.3	70.0	70.0	70.7	70.7	71.4	71.4	72.1	72.1	72.8	73.5	21

A GENERAL TRAVERSE TABLE, OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crs.	Points Degrees	DISTANCE.															
		105		106		107		108		109		110		111		112	
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure
0	0	105.0	00.0	106.0	00.0	107.0	00.0	108.0	00.0	109.0	00.0	110.0	00.0	111.0	00.0	112.0	00.0
1	1	105.0	01.8	106.0	01.8	107.0	01.9	108.0	01.9	109.0	01.9	110.0	01.9	111.0	01.9	112.0	01.9
2	2	104.9	03.7	105.9	03.7	106.9	03.7	107.9	03.8	108.9	03.8	109.9	03.8	110.9	03.9	111.9	03.9
3	3	104.9	05.2	105.9	05.2	106.9	05.3	107.9	05.3	108.9	05.4	109.9	05.4	110.9	05.5	111.9	05.5
4	4	104.9	05.5	105.9	05.5	106.9	05.6	107.9	05.7	108.9	05.7	109.9	05.8	110.9	05.8	111.9	05.8
5	5	104.7	07.3	105.7	07.4	106.7	07.5	107.7	07.5	108.7	07.6	109.7	07.7	110.7	07.7	111.7	07.7
6	6	104.6	09.2	105.6	09.2	106.6	09.3	107.6	09.4	108.6	09.5	109.6	09.6	110.6	09.7	111.6	09.7
7	7	104.5	10.3	105.5	10.4	106.5	10.5	107.5	10.6	108.5	10.7	109.5	10.8	110.5	10.9	111.5	10.9
8	8	104.4	11.0	105.4	11.1	106.4	11.2	107.4	11.3	108.4	11.4	109.4	11.5	110.4	11.6	111.4	11.6
9	9	104.2	12.8	105.2	12.9	106.2	13.0	107.2	13.2	108.2	13.3	109.2	13.4	110.2	13.5	111.2	13.5
10	10	104.0	14.6	105.0	14.8	106.0	14.9	107.0	15.0	108.0	15.2	109.0	15.3	110.0	15.4	111.0	15.4
11	11	103.9	15.4	104.8	15.5	105.8	15.7	106.8	15.8	107.8	16.0	108.8	16.1	109.8	16.3	110.8	16.3
12	12	103.7	16.4	104.6	16.6	105.6	16.7	106.6	16.9	107.6	17.1	108.6	17.2	109.6	17.4	110.6	17.4
13	13	103.4	18.2	104.4	18.4	105.4	18.6	106.4	18.8	107.3	18.9	108.3	19.1	109.3	19.3	110.3	19.3
14	14	103.1	20.0	104.1	20.2	105.0	20.4	106.0	20.6	107.0	20.8	108.0	21.0	109.0	21.2	110.0	21.2
15	15	103.0	20.5	104.0	20.7	104.9	20.9	105.9	21.1	106.9	21.3	107.9	21.5	108.9	21.7	109.8	21.7
16	16	102.7	21.8	103.7	22.0	104.7	22.2	105.7	22.5	106.6	22.7	107.6	22.9	108.6	23.1	109.6	23.1
17	17	102.3	23.6	103.3	23.8	104.3	24.1	105.2	24.3	106.2	24.5	107.2	24.7	108.2	25.0	109.1	25.0
18	18	101.9	25.4	102.9	25.6	103.8	25.9	104.8	26.1	105.8	26.4	106.7	26.6	107.7	26.9	108.7	26.9
19	19	101.9	25.5	102.8	25.8	103.8	26.0	104.8	26.2	105.7	26.5	106.7	26.7	107.7	27.0	108.6	27.0
20	20	101.4	27.2	102.4	27.4	103.4	27.7	104.3	28.0	105.3	28.2	106.3	28.5	107.2	28.7	108.2	28.7
21	21	100.9	28.9	101.9	29.2	102.9	29.5	103.8	29.8	104.8	30.0	105.7	30.3	106.7	30.6	107.7	30.6
22	22	100.5	30.5	101.4	30.8	102.4	31.1	103.3	31.4	104.3	31.6	105.3	31.9	106.2	32.2	107.2	32.2
23	23	100.4	30.7	101.4	31.0	102.3	31.3	103.3	31.6	104.2	31.9	105.2	32.2	106.1	32.5	107.1	32.5
24	24	99.9	32.4	100.8	32.8	101.8	33.1	102.7	33.4	103.7	33.7	104.6	34.0	105.6	34.3	106.5	34.3
25	25	99.3	34.2	100.2	34.5	101.2	34.8	102.1	35.2	103.1	35.5	104.0	35.8	105.0	36.1	105.9	36.1
26	26	98.9	35.4	99.8	35.7	100.7	36.0	101.7	36.4	102.6	36.7	103.6	37.1	104.5	37.4	105.5	37.4
27	27	98.7	35.9	99.6	36.3	100.5	36.6	101.5	36.9	102.4	37.3	103.4	37.6	104.3	38.0	105.2	38.0
28	28	98.0	37.6	99.0	38.0	99.9	38.3	100.8	38.7	101.8	39.1	102.7	39.4	103.6	39.8	104.6	39.8
29	29	97.4	39.3	98.3	39.7	99.2	40.1	100.1	40.5	101.1	40.8	102.0	41.2	102.9	41.6	103.8	41.6
30	30	97.0	40.2	97.9	40.6	98.9	40.9	99.8	41.3	100.7	41.7	101.6	42.1	102.6	42.5	103.5	42.5
31	31	96.7	41.0	97.6	41.4	98.5	41.8	99.4	42.2	100.3	42.6	101.3	43.0	102.2	43.4	103.1	43.4
32	32	95.9	42.7	96.8	43.1	97.7	43.5	98.7	43.9	99.6	44.3	100.5	44.7	101.4	45.1	102.3	45.1
33	33	95.2	44.4	96.1	44.8	97.0	45.2	97.9	45.6	98.8	46.1	99.7	46.5	100.6	46.9	101.5	46.9
34	34	94.9	44.9	95.8	45.3	96.7	45.7	97.6	46.2	98.5	46.6	99.4	47.0	100.3	47.5	101.2	47.5
35	35	94.4	46.0	95.3	46.5	96.2	46.9	97.1	47.3	98.0	47.8	98.9	48.2	99.8	48.7	100.7	48.7
36	36	93.6	47.7	94.4	48.1	95.3	48.6	96.2	49.0	97.1	49.5	98.0	49.9	98.9	50.4	99.8	50.4
37	37	92.7	49.3	93.6	49.8	94.5	50.2	95.4	50.7	96.2	51.2	97.1	51.6	98.0	52.1	98.9	52.1
38	38	92.6	49.5	93.5	50.0	94.4	50.4	95.2	50.9	96.1	51.4	97.0	51.9	97.9	52.3	98.8	52.3
39	39	91.8	50.9	92.7	51.4	93.6	51.9	94.5	52.4	95.3	52.8	96.2	53.3	97.1	53.8	98.0	53.8
40	40	90.9	52.5	91.8	53.0	92.7	53.5	93.5	54.0	94.4	54.5	95.3	55.0	96.1	55.5	97.0	55.5
41	41	90.1	54.0	90.9	54.5	91.8	55.0	92.6	55.5	93.5	56.0	94.4	56.6	95.2	57.1	96.1	57.1
42	42	89.0	55.6	89.9	56.2	90.7	56.7	91.6	57.2	92.4	57.8	93.3	58.3	94.1	58.8	95.0	58.8
43	43	88.1	57.2	88.9	57.7	89.7	58.3	90.6	58.8	91.4	59.4	92.3	59.9	93.1	60.5	93.9	60.5
44	44	87.3	58.3	88.1	58.9	89.0	59.4	89.8	60.0	90.6	60.6	91.5	61.1	92.3	61.7	93.1	61.7
45	45	87.0	58.7	87.9	59.3	88.7	59.8	89.5	60.4	90.4	61.0	91.2	61.5	92.0	62.1	92.9	62.1
46	46	86.0	60.2	86.8	60.8	87.6	61.4	88.5	61.9	89.3	62.5	90.1	63.1	90.9	63.7	91.7	63.7
47	47	84.9	61.7	85.8	62.3	86.6	62.9	87.4	63.5	88.2	64.1	89.0	64.7	89.8	65.2	90.6	65.2
48	48	84.3	62.5	85.1	63.1	85.9	63.7	86.7	64.3	87.5	64.9	88.4	65.5	89.2	66.1	90.0	66.1
49	49	83.9	63.2	84.7	63.8	85.5	64.4	86.3	65.0	87.1	65.6	87.9	66.2	88.7	66.8	89.4	66.8
50	50	82.7	64.6	83.5	65.3	84.3	65.9	85.1	66.5	85.9	67.1	86.7	67.7	87.5	68.3	88.3	68.3
51	51	81.6	66.1	82.4	66.7	83.2	67.3	83.9	68.0	84.7	68.6	85.5	69.2	86.3	69.9	87.0	69.9
52	52	81.2	66.6	81.9	67.2	82.7	67.9	83.5	68.5	84.3	69.1	85.0	69.8	85.8	70.4	86.6	70.4
53	53	80.4	67.5	81.2	68.1	82.0	68.8	82.7	69.4	83.5	70.1	84.3	70.7	85.0	71.3	85.8	71.3
54	54	79.2	68.9	80.0	69.5	80.8	70.2	81.5	70.9	82.3	71.5	83.0	72.2	83.8	72.8	84.5	72.8
55	55	78.0	70.3	78.8	70.9	79.5	71.6	80.3	72.3	81.0	72.9	81.7	73.6	82.5	74.3	83.2	74.3
56	56	77.8	70.5	78.5	71.2	79.3	71.9	80.0	72.5	80.8	73.2	81.5	73.9	82.2	74.5	83.0	74.5
57	57	76.8	71.6	77.5	72.3	78.3	73.0	79.0	73.7	79.7	74.3	80.4	75.0	81.2	75.7	81.9	75.7
58	58	75.5	72.9	76.3	73.6	77.0	74.3	77.7	75.0	78.4	75.7	79.1	76.4	79.8	77.1	80.6	77.1
59	59	74.2	74.2	75.0	75.0	75.7	75.7	76.4	76.4	77.1	77.1	77.8	77.8	78.5	78.5	79.2	79.2
Crs.	Points Degrees	DISTANCE.															
		105		106		107		108		109		110		111		112	
		Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.

GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Cosec.	Degrees.	Points			
113		114		115		116		117		118		119		120							
D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.						
13.0	00.0	114.0	00.0	115.0	00.0	116.0	00.0	117.0	00.0	118.0	00.0	119.0	00.0	120.0	00.0	90	8	8			
13.0	02.0	114.0	02.0	115.0	02.0	116.0	02.0	117.0	02.0	118.0	02.1	119.0	02.1	120.0	02.1	89	8	8			
12.9	03.9	113.9	04.0	114.9	04.0	115.9	04.0	116.9	04.1	117.9	04.1	118.9	04.2	119.9	04.2	88	8	8			
12.9	05.5	113.9	05.6	114.9	05.6	115.9	05.7	116.9	05.7	117.9	05.8	118.9	05.8	119.9	05.9	87	7	7			
12.8	05.9	113.8	06.0	114.8	06.0	115.8	06.1	116.8	06.1	117.8	06.2	118.8	06.2	119.8	06.3	87	8	8			
12.7	07.9	113.7	08.0	114.7	08.0	115.7	08.1	116.7	08.2	117.7	08.2	118.7	08.3	119.7	08.4	86	8	8			
12.6	09.8	113.6	09.9	114.6	10.0	115.6	10.1	116.6	10.2	117.6	10.3	118.5	10.4	119.5	10.5	85	8	8			
12.5	11.1	113.5	11.2	114.4	11.3	115.4	11.4	116.4	11.5	117.4	11.6	118.4	11.7	119.4	11.8	84	7	7			
12.4	11.8	113.4	11.9	114.4	12.0	115.4	12.1	116.4	12.2	117.4	12.3	118.3	12.4	119.3	12.5	84	8	8			
12.3	13.8	113.2	13.9	114.1	14.0	115.1	14.1	116.1	14.3	117.1	14.4	118.1	14.5	119.1	14.6	83	8	8			
11.0	15.7	112.0	15.9	113.0	16.0	114.9	16.1	115.9	16.3	116.9	16.4	117.8	16.6	118.8	16.7	82	8	8			
11.8	16.6	112.8	16.7	113.7	16.9	114.7	17.0	115.7	17.2	116.7	17.3	117.7	17.5	118.7	17.6	81	7	7			
11.6	17.7	112.6	17.8	113.6	18.0	114.6	18.1	115.6	18.3	116.5	18.5	117.5	18.6	118.5	18.8	81	8	8			
11.3	19.6	112.3	19.8	113.3	20.0	114.2	20.1	115.2	20.3	116.2	20.5	117.2	20.7	118.2	20.8	80	8	8			
10.9	21.6	111.9	21.8	112.9	21.9	113.9	22.1	114.9	22.3	115.8	22.5	116.8	22.7	117.8	22.9	79	7	7			
10.8	22.0	111.8	22.2	112.8	22.4	113.8	22.6	114.7	22.8	115.7	23.0	116.7	23.2	117.7	23.4	78	7	7			
10.5	23.5	111.5	23.7	112.5	23.9	113.5	24.1	114.4	24.3	115.4	24.5	116.4	24.7	117.4	24.9	78	8	8			
10.1	25.4	111.1	25.6	112.1	25.9	113.0	26.1	114.0	26.3	115.0	26.5	116.0	26.8	116.9	27.0	77	7	7			
09.6	27.3	110.6	27.6	111.6	27.8	112.6	28.1	113.5	28.3	114.5	28.5	115.5	28.8	116.4	29.0	76	7	7			
09.6	27.5	110.6	27.7	111.6	27.9	112.5	28.2	113.5	28.4	114.5	28.7	115.4	28.9	116.4	29.2	75	6	6			
09.1	29.2	110.1	29.5	111.1	29.8	112.0	30.0	113.0	30.3	114.0	30.5	114.9	30.8	115.9	31.1	75	7	7			
08.6	31.1	109.6	31.4	110.5	31.7	111.5	32.0	112.5	32.2	113.4	32.5	114.4	32.8	115.4	33.1	74	6	6			
08.1	32.8	109.1	33.1	110.0	33.4	111.0	33.7	112.0	34.0	112.9	34.3	113.9	34.5	114.8	34.8	73	6	6			
08.1	33.0	109.0	33.3	110.0	33.6	110.9	33.9	111.9	34.2	112.8	34.5	113.8	34.8	114.8	35.1	73	7	7			
07.5	34.9	108.4	35.2	109.4	35.5	110.3	35.8	111.3	36.2	112.2	36.5	113.2	36.8	114.1	37.1	72	6	6			
06.8	36.8	107.8	37.1	108.7	37.4	109.7	37.8	110.6	38.1	111.6	38.4	112.5	38.7	113.5	39.1	71	6	6			
06.4	38.1	107.3	38.4	108.3	38.7	109.2	39.1	110.2	39.4	111.1	39.8	112.0	40.1	113.0	40.4	70	6	6			
06.2	38.6	107.1	39.0	108.1	39.3	109.0	39.7	109.9	40.0	110.9	40.4	111.8	40.7	112.8	41.0	70	7	7			
05.5	40.5	106.4	40.9	107.4	41.2	108.3	41.6	109.2	41.9	110.2	42.3	111.1	42.6	112.0	43.0	69	6	6			
04.8	42.3	105.7	42.7	106.6	43.1	107.6	43.5	108.5	43.8	109.4	44.2	110.3	44.6	111.3	45.0	68	6	6			
04.4	43.2	105.3	43.6	106.2	44.0	107.2	44.4	108.1	44.8	109.0	45.2	109.9	45.5	110.9	45.9	67	6	6			
04.4	44.2	104.9	44.5	105.9	44.9	106.8	45.3	107.7	45.7	108.6	46.1	109.5	46.5	110.5	46.9	67	7	7			
03.2	46.0	104.1	46.4	105.1	46.8	106.0	47.2	106.9	47.6	107.8	48.0	108.7	48.4	109.6	48.8	66	6	6			
02.4	47.8	103.3	48.2	104.2	48.6	105.1	49.0	106.0	49.4	106.9	49.9	107.9	50.3	108.8	50.7	65	6	6			
02.2	48.3	103.1	48.7	104.0	49.2	104.9	49.6	105.8	50.0	106.7	50.5	107.6	50.9	108.5	51.3	64	5	5			
01.6	49.5	102.5	50.0	103.4	50.4	104.3	50.9	105.2	51.3	106.1	51.7	107.0	52.2	107.9	52.6	64	6	6			
00.7	51.3	101.6	51.8	102.5	52.2	103.4	52.7	104.2	53.1	105.1	53.6	106.0	54.0	106.9	54.5	63	5	5			
00.8	53.1	100.7	53.5	101.5	54.0	102.4	54.5	103.3	54.9	104.2	55.4	105.1	55.9	106.0	56.3	62	5	5			
00.7	53.3	100.5	53.7	101.4	54.2	102.3	54.7	103.2	55.2	104.1	55.6	104.9	56.1	105.8	56.6	61	5	5			
00.8	54.8	99.7	55.3	100.6	55.8	101.5	56.2	102.3	56.7	103.2	57.2	104.1	57.7	105.0	58.2	61	6	6			
00.9	56.5	98.7	57.0	99.6	57.5	100.5	58.0	101.3	58.5	102.2	59.0	103.1	59.5	103.9	60.0	60	5	5			
00.9	58.1	97.8	58.6	98.6	59.1	99.5	59.6	100.4	60.2	101.2	60.7	102.1	61.2	102.9	61.7	59	5	5			
00.9	58.2	97.7	58.7	98.6	59.2	99.4	59.7	100.3	60.3	101.1	60.8	102.0	61.3	102.9	61.8	59	6	6			
00.8	59.9	96.7	60.4	97.5	60.9	98.4	61.5	99.2	62.0	100.1	62.5	100.9	63.1	101.8	63.6	58	5	5			
00.8	61.5	95.6	62.1	96.4	62.6	97.3	63.2	98.1	63.7	99.0	64.3	99.8	64.8	100.6	65.4	57	5	5			
00.8	62.8	94.8	63.3	95.6	63.9	96.5	64.4	97.3	65.0	98.1	65.5	98.9	66.1	99.8	66.7	56	5	5			
00.7	63.2	94.5	63.7	95.3	64.3	96.2	64.9	97.0	65.4	97.8	66.0	98.7	66.5	99.5	67.1	55	5	5			
00.6	64.8	93.4	65.4	94.2	66.0	95.0	66.5	95.8	67.1	96.7	67.7	97.5	68.3	98.3	68.8	54	5	5			
00.4	66.4	92.2	67.0	93.0	67.6	93.8	68.2	94.7	68.8	95.5	69.4	96.3	69.9	97.1	70.5	53	4	4			
00.8	67.3	91.6	67.9	92.4	68.5	93.2	69.1	94.0	69.7	94.8	70.3	95.6	70.9	96.4	71.5	52	4	4			
00.2	68.0	91.0	68.6	91.8	69.2	92.6	69.8	93.4	70.4	94.2	71.0	95.0	71.6	95.8	72.2	51	4	4			
00.0	69.6	89.8	70.2	90.6	70.8	91.4	71.4	92.2	72.0	93.0	72.6	93.8	73.3	94.6	73.9	50	4	4			
00.8	71.1	88.6	71.7	89.4	72.4	90.1	73.0	90.9	73.6	91.7	74.3	92.5	74.9	93.3	75.5	49	4	4			
00.4	71.7	88.1	72.3	88.9	73.0	89.7	73.6	90.4	74.2	91.2	74.9	92.0	75.5	92.8	76.1	48	4	4			
00.6	72.6	87.3	73.3	88.1	73.9	88.9	74.6	89.6	75.2	90.4	75.8	91.2	76.5	91.9	77.1	47	4	4			
00.3	74.1	86.0	74.8	86.8	75.4	87.5	76.1	88.3	76.8	89.1	77.4	89.8	78.1	90.6	78.7	46	4	4			
00.4	75.6	84.7	76.3	85.5	77.0	86.2	77.6	86.9	78.3	87.7	79.0	88.4	79.6	89.2	80.3	45	4	4			
00.7	75.9	84.5	76.6	85.2	77.2	86.0	77.9	86.7	78.6	87.4	79.2	88.2	79.9	88.9	80.6	44	4	4			
00.2	77.1	83.4	77.7	84.1	78.4	84.8	79.1	85.6	79.8	86.3	80.5	87.0	81.2	87.8	81.8	43	4	4			
00.3	78.5	82.0	79.2	82.7	79.9	83.4	80.6	84.2	81.3	84.9	82.0	85.6	82.7	86.3	83.4	42	4	4			
00.9	79.9	80.6	80.6	81.3	81.3	82.0	82.0	82.7	82.7	83.4	83.4	84.1	84.1	84.9	84.9	41	4	4			
Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Departure.	D. Lat.	Cosec.					
113	114	115	116	117	118	119	120	DISTANCE.											Cosec.		

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crs.		DISTANCE.																Crs.	
Points Degrees	Degrees	121		122		123		124		125		126		127		128		Points Degrees	Degrees
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure		
0	0	121.0	00.0	122.0	00.0	123.0	00.0	124.0	00.0	125.0	00.0	126.0	00.0	127.0	00.0	128.0	00.0	0	0
1	1	121.0	02.1	122.0	02.1	123.0	02.1	124.0	02.2	125.0	02.2	126.0	02.2	127.0	02.2	128.0	02.2	1	1
2	2	120.9	04.2	121.9	04.3	122.9	04.3	123.9	04.3	124.9	04.4	125.9	04.4	126.9	04.4	127.9	04.5	2	2
3	3	120.9	05.9	121.9	06.0	122.9	06.0	123.9	06.1	124.9	06.1	125.8	06.2	126.8	06.2	127.8	06.3	3	3
4	4	120.8	06.3	121.8	06.4	122.8	06.4	123.8	06.5	124.8	06.5	125.8	06.6	126.8	06.6	127.8	06.7	4	4
5	5	120.7	08.4	121.7	08.5	122.7	08.6	123.7	08.6	124.7	08.7	125.7	08.8	126.7	08.9	127.7	08.9	5	5
6	6	120.5	10.5	121.5	10.6	122.5	10.7	123.5	10.8	124.5	10.9	125.5	11.0	126.5	11.1	127.5	11.2	6	6
7	7	120.4	11.9	121.4	12.0	122.4	12.1	123.4	12.2	124.4	12.3	125.4	12.3	126.4	12.4	127.4	12.5	7	7
8	8	120.3	12.6	121.3	12.8	122.3	12.9	123.3	13.0	124.3	13.1	125.3	13.2	126.3	13.3	127.3	13.4	8	8
9	9	120.1	14.7	121.1	14.9	122.1	15.0	123.1	15.1	124.1	15.2	125.1	15.4	126.1	15.5	127.0	15.6	9	9
10	10	119.8	16.8	120.8	17.0	121.8	17.1	122.8	17.3	123.8	17.4	124.8	17.5	125.8	17.7	126.8	17.8	10	10
11	11	119.7	17.7	120.7	17.9	121.7	18.0	122.7	18.2	123.6	18.3	124.6	18.5	125.6	18.6	126.6	18.8	11	11
12	12	119.5	18.9	120.5	19.1	121.5	19.2	122.5	19.4	123.5	19.6	124.4	19.7	125.4	19.9	126.4	20.0	12	12
13	13	119.2	21.0	120.1	21.2	121.1	21.4	122.1	21.5	123.1	21.7	124.1	21.9	125.1	22.1	126.1	22.2	13	13
14	14	118.8	23.1	119.8	23.3	120.7	23.5	121.7	23.7	122.7	23.9	123.7	24.0	124.7	24.2	125.6	24.4	14	14
15	15	118.7	23.6	119.7	23.8	120.6	24.0	121.6	24.2	122.6	24.4	123.6	24.6	124.6	24.8	125.5	25.0	15	15
16	16	118.4	25.2	119.3	25.4	120.3	25.6	121.3	25.8	122.3	26.0	123.2	26.2	124.2	26.4	125.2	26.6	16	16
17	17	117.9	27.2	118.9	27.4	119.8	27.7	120.8	27.9	121.8	28.1	122.8	28.3	123.7	28.6	124.7	28.8	17	17
18	18	117.4	29.3	118.4	29.5	119.3	29.8	120.3	30.0	121.3	30.2	122.3	30.5	123.2	30.7	124.2	31.0	18	18
19	19	117.4	29.4	118.3	29.6	119.3	29.9	120.3	30.1	121.3	30.4	122.2	30.6	123.2	30.9	124.2	31.1	19	19
20	20	116.9	31.3	117.8	31.6	118.8	31.8	119.8	32.1	120.7	32.4	121.7	32.6	122.7	32.9	123.6	33.1	20	20
21	21	116.3	33.4	117.3	33.6	118.2	33.9	119.2	34.2	120.2	34.5	121.1	34.7	122.1	35.0	123.0	35.3	21	21
22	22	115.8	35.1	116.7	35.4	117.7	35.7	118.7	36.0	119.6	36.3	120.6	36.6	121.5	36.9	122.5	37.2	22	22
23	23	115.7	35.4	116.7	35.7	117.6	36.0	118.6	36.3	119.5	36.5	120.5	36.8	121.5	37.1	122.4	37.4	23	23
24	24	115.1	37.4	116.0	37.7	117.0	38.0	117.9	38.3	118.9	38.6	119.8	38.9	120.8	39.2	121.7	39.6	24	24
25	25	114.4	39.4	115.4	39.7	116.3	40.0	117.2	40.4	118.2	40.7	119.1	41.0	120.1	41.3	121.0	41.7	25	25
26	26	113.9	40.8	114.9	41.1	115.8	41.4	116.8	41.8	117.7	42.1	118.6	42.4	119.6	42.8	120.5	43.1	26	26
27	27	113.7	41.4	114.6	41.7	115.6	42.1	116.5	42.4	117.5	42.8	118.4	43.1	119.3	43.4	120.3	43.8	27	27
28	28	113.0	43.4	113.9	43.7	114.8	44.1	115.8	44.4	116.7	44.8	117.6	45.2	118.6	45.5	119.5	45.9	28	28
29	29	112.2	45.3	113.1	45.7	114.0	46.1	115.0	46.5	115.9	46.8	116.8	47.2	117.8	47.6	118.7	47.9	29	29
30	30	111.8	46.3	112.7	46.7	113.6	47.1	114.6	47.5	115.5	47.8	116.4	48.2	117.3	48.6	118.3	49.0	30	30
31	31	111.4	47.3	112.3	47.7	113.2	48.1	114.1	48.5	115.1	48.8	116.0	49.2	116.9	49.6	117.8	50.0	31	31
32	32	110.5	49.2	111.5	49.6	112.4	50.0	113.3	50.4	114.2	50.8	115.1	51.2	116.0	51.7	116.9	52.1	32	32
33	33	109.7	51.1	110.6	51.6	111.5	52.0	112.4	52.4	113.3	52.8	114.2	53.2	115.1	53.7	116.0	54.1	33	33
34	34	109.4	51.7	110.3	52.2	111.2	52.6	112.1	53.0	113.0	53.4	113.9	53.9	114.8	54.3	115.7	54.7	34	34
35	35	108.8	53.0	109.7	53.5	110.6	53.9	111.5	54.4	112.3	54.8	113.2	55.2	114.1	55.7	115.0	56.1	35	35
36	36	107.8	54.9	108.7	55.4	109.6	55.8	110.5	56.3	111.4	56.7	112.3	57.2	113.2	57.7	114.0	58.1	36	36
37	37	106.8	56.8	107.7	57.3	108.6	57.7	109.5	58.2	110.4	58.7	111.3	59.2	112.1	59.6	113.0	60.1	37	37
38	38	106.7	57.0	107.6	57.5	108.5	58.0	109.4	58.5	110.2	58.9	111.1	59.4	112.0	59.9	112.9	60.3	38	38
39	39	105.8	58.7	106.7	59.1	107.6	59.6	108.5	60.1	109.3	60.6	110.2	61.1	111.1	61.6	112.0	62.1	39	39
40	40	104.8	60.5	105.7	61.0	106.5	61.5	107.4	62.0	108.3	62.5	109.1	63.0	110.0	63.5	110.9	64.0	40	40
41	41	103.8	62.2	104.6	62.7	105.5	63.2	106.4	63.7	107.2	64.3	108.1	64.8	108.9	65.3	109.8	65.8	41	41
42	42	103.7	62.3	104.6	62.8	105.4	63.3	106.3	63.9	107.1	64.4	108.0	64.9	108.9	65.4	109.7	65.9	42	42
43	43	102.6	64.1	103.5	64.7	104.3	65.2	105.2	65.7	106.0	66.2	106.9	66.8	107.7	67.3	108.6	67.8	43	43
44	44	101.5	65.9	102.3	66.4	103.2	67.0	104.0	67.5	104.8	68.1	105.7	68.6	106.5	69.2	107.3	69.7	44	44
45	45	100.6	67.2	101.4	67.8	102.3	68.3	103.1	68.9	103.9	69.4	104.8	70.0	105.6	70.5	106.4	71.1	45	45
46	46	100.3	67.7	101.1	68.2	102.0	68.8	102.8	69.3	103.6	69.9	104.5	70.5	105.3	71.0	106.1	71.6	46	46
47	47	99.1	69.4	99.9	70.0	100.8	70.5	101.6	71.1	102.4	71.7	103.2	72.3	104.0	72.8	104.9	73.4	47	47
48	48	97.9	71.1	98.7	71.7	99.5	72.3	100.3	72.9	101.1	73.5	101.9	74.1	102.7	74.6	103.6	75.2	48	48
49	49	97.2	72.1	98.0	72.7	98.8	73.3	99.6	73.9	100.4	74.5	101.2	75.1	102.0	75.7	102.8	76.2	49	49
50	50	96.6	72.8	97.4	73.4	98.2	74.0	99.0	74.6	99.8	75.2	100.6	75.8	101.4	76.4	102.2	77.0	50	50
51	51	95.3	74.5	96.1	75.1	96.9	75.7	97.7	76.3	98.5	77.0	99.3	77.6	100.1	78.2	100.9	78.8	51	51
52	52	94.0	76.1	94.8	76.8	95.6	77.4	96.4	78.0	97.1	78.7	97.9	79.3	98.7	79.9	99.5	80.6	52	52
53	53	93.5	76.8	94.3	77.4	95.1	78.0	95.9	78.7	96.6	79.3	97.4	79.9	98.2	80.6	98.9	81.2	53	53
54	54	92.7	77.8	93.5	78.4	94.2	79.1	95.0	79.7	95.8	80.3	96.5	81.0	97.3	81.6	98.1	82.3	54	54
55	55	91.3	79.4	92.1	80.0	92.8	80.7	93.6	81.4	94.3	82.0	95.1	82.7	95.8	83.3	96.6	84.0	55	55
56	56	89.9	81.0	90.7	81.6	91.4	82.3	92.1	83.0	92.9	83.6	93.6	84.3	94.4	85.0	95.1	85.6	56	56
57	57	89.7	81.3	90.4	81.9	91.1	82.6	91.9	83.3	92.6	83.9	93.4	84.6	94.1	85.3	94.8	86.0	57	57
58	58	88.5	82.5	89.2	83.2	90.0	83.9	90.7	84.6	91.4	85.2	92.2	85.9	92.9	86.6	93.6	87.3	58	58
59	59	87.0	84.1	87.8	84.7	88.5	85.4	89.2	86.1	89.9	86.8	90.6	87.5	91.4	88.2	92.1	88.9	59	59
60	60	85.6	85.6	86.3	86.3	87.0	87.0	87.7	87.7	88.4	88.4	89.1	89.1	89.8	89.8	90.5	90.5		

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Cosec.
129		130		131		132		133		134		135		136		
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees Points
129.0	00.0	130.0	00.0	131.0	00.0	132.0	00.0	133.0	00.0	134.0	00.0	135.0	00.0	136.0	00.0	90.8
129.0	02.3	130.0	02.3	131.0	02.3	132.0	02.3	133.0	02.3	134.0	02.3	135.0	02.4	136.0	02.4	89.8
128.9	04.5	129.9	04.5	130.9	04.6	131.9	04.6	132.9	04.6	133.9	04.7	134.9	04.7	135.9	04.7	88.8
128.8	06.3	129.8	06.4	130.8	06.4	131.8	06.5	132.8	06.5	133.8	06.6	134.8	06.6	135.8	06.7	74.8
128.8	06.8	129.8	06.8	130.8	06.9	131.8	06.9	132.8	07.0	133.8	07.0	134.8	07.1	135.8	07.1	87.7
128.7	09.0	129.7	09.1	130.7	09.1	131.7	09.2	132.7	09.3	133.7	09.3	134.7	09.4	135.7	09.5	86.6
128.5	11.2	129.5	11.3	130.5	11.4	131.5	11.5	132.5	11.6	133.5	11.7	134.5	11.8	135.5	11.9	85.5
128.4	12.6	129.4	12.7	130.4	12.8	131.4	12.9	132.4	13.0	133.4	13.1	134.3	13.2	135.3	13.3	74.8
128.3	13.5	129.3	13.6	130.3	13.7	131.3	13.8	132.3	13.9	133.3	14.0	134.3	14.1	135.3	14.2	84.8
128.0	15.7	129.0	15.8	130.0	16.0	131.0	16.1	132.0	16.2	133.0	16.3	134.0	16.5	135.0	16.6	83.8
127.7	18.0	128.7	18.1	129.7	18.2	130.7	18.4	131.7	18.5	132.7	18.6	133.7	18.8	134.7	18.9	82.8
127.6	18.9	128.6	19.1	129.6	19.2	130.6	19.4	131.6	19.5	132.5	19.7	133.5	19.8	134.5	20.0	74.8
127.4	20.2	128.4	20.3	129.4	20.5	130.4	20.6	131.4	20.8	132.4	21.0	133.3	21.1	134.3	21.3	81.8
127.0	22.4	128.0	22.6	129.0	22.7	130.0	22.9	131.0	23.1	132.0	23.3	132.9	23.4	133.9	23.6	80.8
126.6	24.6	127.6	24.8	128.6	25.0	129.6	25.2	130.6	25.4	131.5	25.6	132.5	25.8	133.5	26.0	79.8
126.5	25.2	127.5	25.4	128.5	25.6	129.5	25.8	130.4	26.0	131.4	26.1	132.4	26.3	133.4	26.5	7.8
126.2	26.8	127.2	27.0	128.2	27.2	129.2	27.4	130.1	27.7	131.1	27.9	132.0	28.1	133.0	28.3	78.8
125.7	29.0	126.7	29.2	127.6	29.5	128.6	29.7	129.6	29.9	130.6	30.1	131.5	30.4	132.5	30.6	77.7
125.2	31.2	126.1	31.4	127.1	31.7	128.1	31.9	129.0	32.2	130.0	32.4	131.0	32.7	132.0	32.9	76.6
125.1	31.3	126.1	31.6	127.1	31.8	128.0	32.1	129.0	32.3	130.0	32.6	131.0	32.8	131.9	33.0	64.8
124.6	33.4	125.6	33.6	126.5	33.9	127.5	34.2	128.5	34.4	129.4	34.7	130.4	34.9	131.4	35.2	75.8
124.0	35.6	125.0	35.8	125.9	36.1	126.9	36.4	127.8	36.7	128.8	36.9	129.8	37.2	130.7	37.5	74.8
123.4	37.4	124.4	37.7	125.4	38.0	126.3	38.3	127.3	38.6	128.2	38.9	129.2	39.2	130.1	39.5	64.8
123.4	37.7	124.3	38.0	125.3	38.3	126.2	38.6	127.2	38.9	128.1	39.2	129.1	39.5	130.1	39.8	73.8
122.7	39.9	123.6	40.2	124.6	40.5	125.5	40.8	126.5	41.1	127.4	41.4	128.4	41.7	129.3	42.0	72.8
122.0	42.0	122.9	42.3	123.9	42.6	124.8	43.0	125.8	43.3	126.7	43.6	127.6	44.0	128.6	44.3	71.8
121.5	43.5	122.4	43.8	123.3	44.1	124.3	44.5	125.2	44.8	126.2	45.1	127.1	45.5	128.0	45.8	64.8
121.2	44.1	122.2	44.5	123.1	44.8	124.0	45.1	125.0	45.5	125.9	45.8	126.9	46.2	127.8	46.5	70.8
120.4	46.2	121.4	46.6	122.3	46.9	123.2	47.3	124.2	47.7	125.1	48.0	126.0	48.4	127.0	48.7	69.8
119.6	48.3	120.5	48.7	121.5	49.1	122.4	49.4	123.3	49.8	124.2	50.2	125.2	50.6	126.1	50.9	68.8
119.2	49.4	120.1	49.7	121.0	50.0	122.0	50.5	122.9	50.9	123.8	51.3	124.7	51.7	125.6	52.0	6.8
118.7	50.4	119.7	50.8	120.6	51.2	121.5	51.6	122.4	52.0	123.3	52.4	124.3	52.7	125.2	53.1	67.8
117.8	52.5	118.8	52.9	119.7	53.3	120.6	53.7	121.5	54.1	122.4	54.5	123.3	54.9	124.2	55.3	66.8
116.9	54.5	117.8	54.9	118.7	55.4	119.6	55.8	120.5	56.2	121.4	56.6	122.4	57.1	123.3	57.5	65.8
116.6	55.2	117.5	55.6	118.4	56.0	119.3	56.4	120.2	56.9	121.1	57.3	122.0	57.7	122.9	58.1	64.8
115.9	56.5	116.8	57.0	117.7	57.4	118.6	57.9	119.5	58.3	120.4	58.7	121.3	59.2	122.2	59.6	63.8
114.9	58.6	115.8	59.0	116.7	59.5	117.6	59.9	118.5	60.4	119.4	60.8	120.3	61.3	121.2	61.7	62.8
113.9	60.6	114.8	61.0	115.7	61.5	116.6	62.0	117.4	62.4	118.3	62.9	119.2	63.4	120.1	63.8	61.8
113.8	60.8	114.6	61.3	115.5	61.8	116.4	62.2	117.3	62.7	118.2	63.2	119.1	63.6	119.9	64.1	54.8
112.8	62.5	113.7	63.0	114.6	63.5	115.4	64.0	116.3	64.5	117.2	65.0	118.1	65.4	118.9	65.9	61.8
111.7	64.5	112.6	65.0	113.4	65.5	114.3	66.0	115.2	66.5	116.0	67.0	116.9	67.5	117.8	68.0	60.8
110.6	66.3	111.5	66.8	112.4	67.3	113.2	67.9	114.1	68.4	114.9	68.9	115.8	69.4	116.7	69.9	54.8
110.6	66.4	111.4	67.0	112.3	67.5	113.1	68.0	114.0	68.5	114.9	69.0	115.7	69.5	116.6	70.0	59.8
109.4	68.4	110.2	68.9	111.1	69.4	111.9	69.9	112.8	70.5	113.6	71.0	114.5	71.5	115.3	72.1	58.8
108.2	70.3	109.0	70.8	109.9	71.3	110.7	71.9	111.5	72.4	112.4	73.0	113.2	73.5	114.1	74.1	57.8
107.3	71.7	108.1	72.2	108.9	72.8	109.8	73.3	110.6	73.9	111.4	74.4	112.2	75.0	113.0	75.5	5.8
106.9	72.1	107.8	72.7	108.6	73.3	109.4	73.8	110.3	74.4	111.1	74.9	111.9	75.5	112.7	76.1	56.8
105.7	74.0	106.5	74.6	107.3	75.1	108.1	75.7	108.9	76.3	109.8	76.9	110.6	77.4	111.4	78.0	55.8
104.4	75.8	105.2	76.4	106.0	77.0	106.8	77.6	107.6	78.2	108.4	78.8	109.2	79.4	110.0	79.9	54.8
103.6	76.8	104.4	77.4	105.2	78.0	106.0	78.6	106.8	79.2	107.6	79.8	108.4	80.4	109.2	81.0	44.8
103.0	77.6	103.8	78.2	104.6	78.8	105.4	79.4	106.2	80.0	107.0	80.6	107.8	81.2	108.6	81.8	53.8
101.7	79.4	102.4	80.0	103.2	80.7	104.0	81.3	104.8	81.9	105.6	82.5	106.4	83.1	107.2	83.7	52.8
100.3	81.2	101.0	81.8	101.8	82.4	102.6	83.1	103.4	83.7	104.1	84.3	104.9	85.0	105.7	85.6	51.8
99.7	81.8	100.5	82.5	101.3	83.1	102.0	83.7	102.8	84.4	103.6	85.0	104.4	85.6	105.1	86.3	44.8
98.8	82.9	99.6	83.6	100.4	84.2	101.1	84.8	101.9	85.5	102.6	86.1	103.4	86.8	104.2	87.4	50.8
97.4	84.6	98.1	85.3	98.9	85.9	99.6	86.6	100.4	87.3	101.1	87.9	101.9	88.6	102.6	89.2	49.8
95.9	86.3	96.6	87.0	97.4	87.7	98.1	88.3	98.8	89.0	99.6	89.7	100.3	90.3	101.1	91.0	48.8
95.6	86.6	96.3	87.3	97.1	88.0	97.8	88.6	98.5	89.3	99.3	90.0	100.0	90.7	100.8	91.3	44.8
94.3	88.0	95.1	88.7	95.8	89.3	96.5	90.0	97.3	90.7	98.0	91.4	98.7	92.1	99.5	92.8	47.8
92.8	89.6	93.5	90.3	94.2	91.0	95.0	91.7	95.7	92.4	96.4	93.1	97.1	93.8	97.8	94.5	46.8
91.2	91.2	91.9	92.6	92.6	93.3	93.3	93.3	94.0	94.0	94.8	94.8	95.5	95.5	96.2	96.2	45.4
Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees Points
129	130	131	132	133	134	135	136	135	136	135	136	135	136	135	136	Cosec.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.		DISTANCE.																On			
		137		138		139		140		141		142		143		144					
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure				
0	0	137.0	00.0	138.0	00.0	139.0	00.0	140.0	00.0	141.0	00.0	142.0	00.0	143.0	00.0	144.0	00.0	0	0		
1	1	137.0	02.4	138.0	02.4	139.0	02.4	140.0	02.4	141.0	02.5	142.0	02.5	143.0	02.5	144.0	02.5	1	1		
2	2	136.9	04.8	137.9	04.8	138.9	04.9	139.9	04.9	140.9	04.9	141.9	05.0	142.9	05.0	143.9	05.0	2	2		
3	3	136.8	06.7	137.8	06.8	138.8	06.8	139.8	06.9	140.8	06.9	141.8	07.0	142.8	07.0	143.8	07.1	3	3		
4	4	136.7	09.2	137.7	09.2	138.7	09.3	139.7	09.3	140.7	09.4	141.7	09.4	142.7	09.5	143.7	09.5	4	4		
5	5	136.5	11.9	137.5	12.0	138.5	12.1	139.5	12.2	140.5	12.3	141.5	12.4	142.5	12.5	143.5	12.6	5	5		
6	6	136.3	13.4	137.3	13.5	138.3	13.6	139.3	13.7	140.3	13.8	141.3	13.9	142.3	14.0	143.3	14.1	6	6		
7	7	136.2	14.3	137.2	14.4	138.2	14.5	139.2	14.6	140.2	14.7	141.2	14.8	142.2	14.9	143.2	15.1	7	7		
8	8	136.0	16.7	137.0	16.8	138.0	16.9	139.0	17.1	139.9	17.2	140.9	17.3	141.9	17.4	142.9	17.5	8	8		
9	9	135.7	19.1	136.7	19.2	137.7	19.3	138.6	19.5	139.6	19.6	140.6	19.8	141.6	19.9	142.6	20.0	9	9		
10	10	135.5	20.1	136.5	20.2	137.5	20.4	138.5	20.5	139.5	20.7	140.5	20.8	141.4	21.0	142.4	21.1	10	10		
11	11	135.3	21.4	136.3	21.6	137.3	21.7	138.3	21.9	139.3	22.1	140.3	22.2	141.2	22.4	142.2	22.5	11	11		
12	12	134.9	23.8	135.9	24.0	136.9	24.1	137.9	24.3	138.9	24.5	139.8	24.7	140.8	24.8	141.8	25.0	12	12		
13	13	134.5	26.1	135.5	26.3	136.4	26.5	137.4	26.7	138.4	26.9	139.4	27.1	140.4	27.3	141.4	27.5	13	13		
14	14	134.4	26.7	135.3	26.9	136.3	27.1	137.3	27.3	138.3	27.5	139.3	27.7	140.2	27.9	141.2	28.1	14	14		
15	15	134.0	28.5	135.0	28.7	136.0	28.9	136.9	29.1	137.9	29.3	138.9	29.5	139.9	29.7	140.9	29.9	15	15		
16	16	133.5	30.8	134.5	31.0	135.4	31.3	136.4	31.5	137.4	31.7	138.4	31.9	139.3	32.2	140.3	32.4	16	16		
17	17	132.9	33.1	133.9	33.4	134.9	33.6	135.8	33.9	136.8	34.1	137.8	34.4	138.8	34.7	139.7	34.8	17	17		
18	18	132.9	33.3	133.9	33.5	134.8	33.8	135.8	34.0	136.8	34.3	137.7	34.5	138.7	34.7	139.7	35.0	18	18		
19	19	132.3	35.5	133.3	35.7	134.3	36.0	135.2	36.2	136.2	36.5	137.2	36.8	138.1	37.0	139.1	37.3	19	19		
20	20	131.7	37.8	132.7	38.0	133.6	38.3	134.6	38.6	135.5	38.9	136.5	39.1	137.5	39.4	138.4	39.7	20	20		
21	21	131.1	39.8	132.1	40.1	133.0	40.3	134.0	40.6	134.9	40.9	135.9	41.2	136.8	41.5	137.8	41.8	21	21		
22	22	131.0	40.1	132.0	40.3	132.9	40.6	133.9	40.9	134.8	41.2	135.8	41.5	136.8	41.8	137.7	42.1	22	22		
23	23	130.3	42.3	131.2	42.6	132.2	43.0	133.1	43.3	134.1	43.6	135.1	43.9	136.0	44.2	137.0	44.5	23	23		
24	24	129.5	44.6	130.5	44.9	131.4	45.3	132.4	45.6	133.3	45.9	134.3	46.2	135.2	46.6	136.2	46.9	24	24		
25	25	129.0	46.2	129.9	46.5	130.9	46.8	131.8	47.2	132.8	47.5	133.7	47.8	134.6	48.2	135.6	48.5	25	25		
26	26	128.7	46.9	129.7	47.2	130.6	47.5	131.6	47.9	132.5	48.2	133.4	48.6	134.4	48.9	135.3	49.3	26	26		
27	27	127.9	49.1	128.8	49.5	129.8	49.8	130.7	50.2	131.6	50.5	132.6	50.9	133.5	51.2	134.4	51.6	27	27		
28	28	127.0	51.3	128.0	51.7	128.9	52.1	129.8	52.4	130.7	52.8	131.7	53.2	132.6	53.6	133.5	53.9	28	28		
29	29	126.6	52.4	127.5	52.8	128.4	53.2	129.3	53.6	130.3	54.0	131.2	54.3	132.1	54.7	133.0	55.1	29	29		
30	30	126.1	53.5	127.0	53.9	128.0	54.3	128.9	54.7	129.8	55.1	130.7	55.5	131.6	55.9	132.6	56.3	30	30		
31	31	125.2	55.7	126.1	56.1	127.0	56.5	127.9	56.9	128.8	57.3	129.7	57.8	130.6	58.2	131.6	58.6	31	31		
32	32	124.2	57.9	125.1	58.3	126.0	58.7	126.9	59.2	127.8	59.6	128.7	60.0	129.6	60.4	130.5	60.9	32	32		
33	33	123.8	58.6	124.8	59.0	125.7	59.4	126.6	59.9	127.5	60.3	128.4	60.7	129.3	61.1	130.2	61.6	33	33		
34	34	123.1	60.1	124.0	60.5	124.9	60.9	125.8	61.4	126.7	61.8	127.6	62.2	128.5	62.7	129.4	63.1	34	34		
35	35	122.1	62.2	123.0	62.7	123.8	63.1	124.7	63.6	125.6	64.0	126.5	64.5	127.4	64.9	128.3	65.4	35	35		
36	36	121.0	64.3	121.8	64.8	122.7	65.3	123.6	65.7	124.5	66.2	125.4	66.7	126.3	67.1	127.1	67.6	36	36		
37	37	120.8	64.6	121.7	65.1	122.6	65.5	123.5	66.0	124.4	66.5	125.2	66.9	126.1	67.4	127.0	67.9	37	37		
38	38	119.8	66.4	120.7	66.9	121.6	67.4	122.4	67.9	123.3	68.4	124.2	68.8	125.1	69.3	125.9	69.8	38	38		
39	39	118.6	68.5	119.5	69.0	120.4	69.5	121.2	70.0	122.1	70.5	123.0	71.0	123.8	71.5	124.7	72.0	39	39		
40	40	117.5	70.4	118.4	70.9	119.2	71.5	120.1	72.0	120.9	72.5	121.8	73.0	122.7	73.5	123.5	74.0	40	40		
41	41	117.4	70.6	118.3	71.1	119.1	71.6	120.0	72.1	120.9	72.6	121.7	73.1	122.6	73.7	123.4	74.2	41	41		
42	42	116.2	72.6	117.0	73.1	117.9	73.7	118.7	74.2	119.6	74.7	120.4	75.2	121.3	75.8	122.1	76.3	42	42		
43	43	114.9	74.6	115.7	75.2	116.6	75.7	117.4	76.2	118.3	76.8	119.1	77.3	119.9	77.9	120.8	78.4	43	43		
44	44	113.9	76.1	114.7	76.7	115.6	77.2	116.4	77.8	117.2	78.3	118.1	78.9	119.8	79.4	120.7	80.0	44	44		
45	45	113.6	76.6	114.4	77.2	115.2	77.7	116.1	78.3	116.9	78.8	117.7	79.4	118.6	80.0	119.4	80.5	45	45		
46	46	112.2	78.6	113.0	79.2	113.9	79.7	114.7	80.3	115.5	80.9	116.3	81.4	117.1	82.0	118.0	82.6	46	46		
47	47	110.8	80.5	111.6	81.1	112.5	81.7	113.3	82.3	114.1	82.9	114.9	83.5	115.7	84.1	116.5	84.6	47	47		
48	48	110.0	81.6	110.8	82.2	111.6	82.8	112.4	83.4	113.3	84.0	114.1	84.6	114.9	85.2	115.7	85.8	48	48		
49	49	109.4	82.4	110.2	83.1	111.0	83.7	111.8	84.3	112.6	84.9	113.4	85.5	114.2	86.1	115.0	86.7	49	49		
50	50	108.0	84.3	108.7	85.0	109.5	85.6	110.3	86.2	111.1	86.8	111.9	87.4	112.7	88.0	113.5	88.7	50	50		
51	51	106.5	86.2	107.2	86.8	108.0	87.5	108.8	88.1	109.6	88.7	110.4	89.4	111.1	90.0	111.9	90.6	51	51		
52	52	105.9	86.9	106.7	87.5	107.4	88.2	108.2	88.8	109.0	89.4	109.8	90.1	110.5	90.7	111.3	91.4	52	52		
53	53	104.9	88.1	105.7	88.7	106.5	89.3	107.2	90.0	108.0	90.6	108.8	91.3	109.5	91.9	110.3	92.6	53	53		
54	54	103.4	89.9	104.1	90.5	104.9	91.2	105.7	91.8	106.4	92.5	107.2	93.2	107.9	93.8	108.7	94.5	54	54		
55	55	101.8	91.7	102.6	92.3	103.3	93.0	104.0	93.7	104.8	94.3	105.5	95.0	106.3	95.7	107.0	96.4	55	55		
56	56	101.5	92.0	102.3	92.7	103.0	93.3	103.7	94.0	104.5	94.7	105.2	95.4	106.0	96.0	106.7	96.7	56	56		
57	57	100.2	93.4	100.9	94.1	101.7	94.8	102.4	95.5	103.1	96.2	103.9	96.8	104.6	97.5	105.3	98.2	57	57		
58	58	98.5	95.2	99.3	95.9	100.0	96.6	100.7	97.3	101.4	97.9	102.1	98.6	102.9	99.3	103.6	100.0	58	58		
59	59	96.9	96.0	97.6	97.6	98.3	98.3	99.0	99.0	100.7	99.7	100.4	100.4	101.1	101.1	101.8	101.8	59	59		
60	60	96.9	96.0	97.6	97.6	98.3	98.3	99.0	99.0	100.7	99.7	100.4	100.4	101.1	101.1	101.8	101.8	60	60		
61	61	96.9	96.0	97.6	97.6	98.3	98.3	99.0	99.0	100.7	99.7	100.4	100.4	101.1	101.1	101.8	101.8	61	61		
62	62	96.9	96.0	97.6	97.6	98.3	98.3	99.0	99.0	100.7	99.7	100.4	100.4	101.1	101.1	101.8	101.8	62	62		
63	63	9																			

TABLE XLII.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crs.	DISTANCE.																Degrees	Points		
	145		146		147		148		149		150		151		152					
	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure				
145.0	00.0	00.0	146.0	00.0	147.0	00.0	148.0	00.0	149.0	00.0	150.0	00.0	151.0	00.0	152.0	00.0	90	8		
145.1	00.1	00.1	146.1	00.1	147.1	00.1	148.1	00.1	149.1	00.1	150.1	00.1	151.1	00.1	152.1	00.1	90	8		
145.2	00.2	00.2	146.2	00.2	147.2	00.2	148.2	00.2	149.2	00.2	150.2	00.2	151.2	00.2	152.2	00.2	90	8		
145.3	00.3	00.3	146.3	00.3	147.3	00.3	148.3	00.3	149.3	00.3	150.3	00.3	151.3	00.3	152.3	00.3	90	8		
145.4	00.4	00.4	146.4	00.4	147.4	00.4	148.4	00.4	149.4	00.4	150.4	00.4	151.4	00.4	152.4	00.4	90	8		
145.5	00.5	00.5	146.5	00.5	147.5	00.5	148.5	00.5	149.5	00.5	150.5	00.5	151.5	00.5	152.5	00.5	90	8		
145.6	00.6	00.6	146.6	00.6	147.6	00.6	148.6	00.6	149.6	00.6	150.6	00.6	151.6	00.6	152.6	00.6	90	8		
145.7	00.7	00.7	146.7	00.7	147.7	00.7	148.7	00.7	149.7	00.7	150.7	00.7	151.7	00.7	152.7	00.7	90	8		
145.8	00.8	00.8	146.8	00.8	147.8	00.8	148.8	00.8	149.8	00.8	150.8	00.8	151.8	00.8	152.8	00.8	90	8		
145.9	00.9	00.9	146.9	00.9	147.9	00.9	148.9	00.9	149.9	00.9	150.9	00.9	151.9	00.9	152.9	00.9	90	8		
146.0	01.0	01.0	147.0	01.0	148.0	01.0	149.0	01.0	150.0	01.0	151.0	01.0	152.0	01.0	153.0	01.0	91	8		
146.1	01.1	01.1	147.1	01.1	148.1	01.1	149.1	01.1	150.1	01.1	151.1	01.1	152.1	01.1	153.1	01.1	91	8		
146.2	01.2	01.2	147.2	01.2	148.2	01.2	149.2	01.2	150.2	01.2	151.2	01.2	152.2	01.2	153.2	01.2	91	8		
146.3	01.3	01.3	147.3	01.3	148.3	01.3	149.3	01.3	150.3	01.3	151.3	01.3	152.3	01.3	153.3	01.3	91	8		
146.4	01.4	01.4	147.4	01.4	148.4	01.4	149.4	01.4	150.4	01.4	151.4	01.4	152.4	01.4	153.4	01.4	91	8		
146.5	01.5	01.5	147.5	01.5	148.5	01.5	149.5	01.5	150.5	01.5	151.5	01.5	152.5	01.5	153.5	01.5	91	8		
146.6	01.6	01.6	147.6	01.6	148.6	01.6	149.6	01.6	150.6	01.6	151.6	01.6	152.6	01.6	153.6	01.6	91	8		
146.7	01.7	01.7	147.7	01.7	148.7	01.7	149.7	01.7	150.7	01.7	151.7	01.7	152.7	01.7	153.7	01.7	91	8		
146.8	01.8	01.8	147.8	01.8	148.8	01.8	149.8	01.8	150.8	01.8	151.8	01.8	152.8	01.8	153.8	01.8	91	8		
146.9	01.9	01.9	147.9	01.9	148.9	01.9	149.9	01.9	150.9	01.9	151.9	01.9	152.9	01.9	153.9	01.9	91	8		
147.0	02.0	02.0	148.0	02.0	149.0	02.0	150.0	02.0	151.0	02.0	152.0	02.0	153.0	02.0	154.0	02.0	92	8		
147.1	02.1	02.1	148.1	02.1	149.1	02.1	150.1	02.1	151.1	02.1	152.1	02.1	153.1	02.1	154.1	02.1	92	8		
147.2	02.2	02.2	148.2	02.2	149.2	02.2	150.2	02.2	151.2	02.2	152.2	02.2	153.2	02.2	154.2	02.2	92	8		
147.3	02.3	02.3	148.3	02.3	149.3	02.3	150.3	02.3	151.3	02.3	152.3	02.3	153.3	02.3	154.3	02.3	92	8		
147.4	02.4	02.4	148.4	02.4	149.4	02.4	150.4	02.4	151.4	02.4	152.4	02.4	153.4	02.4	154.4	02.4	92	8		
147.5	02.5	02.5	148.5	02.5	149.5	02.5	150.5	02.5	151.5	02.5	152.5	02.5	153.5	02.5	154.5	02.5	92	8		
147.6	02.6	02.6	148.6	02.6	149.6	02.6	150.6	02.6	151.6	02.6	152.6	02.6	153.6	02.6	154.6	02.6	92	8		
147.7	02.7	02.7	148.7	02.7	149.7	02.7	150.7	02.7	151.7	02.7	152.7	02.7	153.7	02.7	154.7	02.7	92	8		
147.8	02.8	02.8	148.8	02.8	149.8	02.8	150.8	02.8	151.8	02.8	152.8	02.8	153.8	02.8	154.8	02.8	92	8		
147.9	02.9	02.9	148.9	02.9	149.9	02.9	150.9	02.9	151.9	02.9	152.9	02.9	153.9	02.9	154.9	02.9	92	8		
148.0	03.0	03.0	149.0	03.0	150.0	03.0	151.0	03.0	152.0	03.0	153.0	03.0	154.0	03.0	155.0	03.0	93	8		
148.1	03.1	03.1	149.1	03.1	150.1	03.1	151.1	03.1	152.1	03.1	153.1	03.1	154.1	03.1	155.1	03.1	93	8		
148.2	03.2	03.2	149.2	03.2	150.2	03.2	151.2	03.2	152.2	03.2	153.2	03.2	154.2	03.2	155.2	03.2	93	8		
148.3	03.3	03.3	149.3	03.3	150.3	03.3	151.3	03.3	152.3	03.3	153.3	03.3	154.3	03.3	155.3	03.3	93	8		
148.4	03.4	03.4	149.4	03.4	150.4	03.4	151.4	03.4	152.4	03.4	153.4	03.4	154.4	03.4	155.4	03.4	93	8		
148.5	03.5	03.5	149.5	03.5	150.5	03.5	151.5	03.5	152.5	03.5	153.5	03.5	154.5	03.5	155.5	03.5	93	8		
148.6	03.6	03.6	149.6	03.6	150.6	03.6	151.6	03.6	152.6	03.6	153.6	03.6	154.6	03.6	155.6	03.6	93	8		
148.7	03.7	03.7	149.7	03.7	150.7	03.7	151.7	03.7	152.7	03.7	153.7	03.7	154.7	03.7	155.7	03.7	93	8		
148.8	03.8	03.8	149.8	03.8	150.8	03.8	151.8	03.8	152.8	03.8	153.8	03.8	154.8	03.8	155.8	03.8	93	8		
148.9	03.9	03.9	149.9	03.9	150.9	03.9	151.9	03.9	152.9	03.9	153.9	03.9	154.9	03.9	155.9	03.9	93	8		
149.0	04.0	04.0	150.0	04.0	151.0	04.0	152.0	04.0	153.0	04.0	154.0	04.0	155.0	04.0	156.0	04.0	94	8		
149.1	04.1	04.1	150.1	04.1	151.1	04.1	152.1	04.1	153.1	04.1	154.1	04.1	155.1	04.1	156.1	04.1	94	8		
149.2	04.2	04.2	150.2	04.2	151.2	04.2	152.2	04.2	153.2	04.2	154.2	04.2	155.2	04.2	156.2	04.2	94	8		
149.3	04.3	04.3	150.3	04.3	151.3	04.3	152.3	04.3	153.3	04.3	154.3	04.3	155.3	04.3	156.3	04.3	94	8		
149.4	04.4	04.4	150.4	04.4	151.4	04.4	152.4	04.4	153.4	04.4	154.4	04.4	155.4	04.4	156.4	04.4	94	8		
149.5	04.5	04.5	150.5	04.5	151.5	04.5	152.5	04.5	153.5	04.5	154.5	04.5	155.5	04.5	156.5	04.5	94	8		
149.6	04.6	04.6	150.6	04.6	151.6	04.6	152.6	04.6	153.6	04.6	154.6	04.6	155.6	04.6	156.6	04.6	94	8		
149.7	04.7	04.7	150.7	04.7	151.7	04.7	152.7	04.7	153.7	04.7	154.7	04.7	155.7	04.7	156.7	04.7	94	8		
149.8	04.8	04.8	150.8	04.8	151.8	04.8	152.8	04.8	153.8	04.8	154.8	04.8	155.8	04.8	156.8	04.8	94	8		
149.9	04.9	04.9	150.9	04.9	151.9	04.9	152.9	04.9	153.9	04.9	154.9	04.9	155.9	04.9	156.9	04.9	94	8		
150.0	05.0	05.0	151.0	05.0	152.0	05.0	153.0	05.0	154.0	05.0	155.0	05.0	156.0	05.0	157.0	05.0	95	8		
150.1	05.1	05.1	151.1	05.1	152.1	05.1	153.1	05.1	154.1	05.1	155.1	05.1	156.1	05.1	157.1	05.1	95	8		
150.2	05.2	05.2	151.2	05.2	152.2	05.2	153.2	05.2	154.2	05.2	155.2	05.2	156.2	05.2	157.2	05.2	95	8		
150.3	05.3	05.3	151.3	05.3	152.3	05.3	153.3	05.3	154.3	05.3	155.3	05.3	156.3	05.3	157.3	05.3	95	8		
150.4	05.4	05.4	151.4	05.4	152.4	05.4	153.4	05.4	154.4	05.4	155.4	05.4	156.4	05.4	157.4	05.4	95	8		
150.5	05.5	05.5	151.5	05.5	152.5	05.5	153.5	05.5	154.5	05.5	155.5	05.5	156.5	05.5	157.5	05.5	95	8		
150.6	05.6	05.6	151.6	05.6	152.6	05.6	153.6	05.6	154.6	05.6	155.6	05.6	156.6	05.6	157.6	05.6	95	8		
150.7	05.7	05.7	151.7	05.7	152.7	05.7	153.7	05.7	154.7	05.7	155.7	05.7	156.7	05.7	157.7	05.7	95	8		
150.8	05.8	05.8	151.8	05.8	152.8	05.8	153.8	05.8	154.8	05.8	155.8	05.8	156.8	05.8	157.8	05.8	95	8		
150.9	05.9	05.9	151.9	05.9	152.9	05.9	153.9	05.9	154.9	05.9	155.9	05.9	156.9	05.9	157.9	05.9	95	8		
151.0	06.0	06.0	152.0	06.0	153.0	06.0	154.0	06.0	155.0	06.0	156.0	06.0	157.0	06.0	158.0	06.0	96	8		
151.1	06.1	06.1	152.1	06.1	153.1	06.1	154.1	06.1	155.1	06.1	156.1	06.1	157.1	06.1	158.1	06.1	96	8		
151.2	06.2	06.2	152.2	06.2	153.2	06.2	154.2	06.2	155.2	06.2	156.2	06.2	157.2	06.2	158.2	06.2	96	8		
151.3	06.3	06.3	152.3	06.3	153.3	06.3	154.3	06.3	155.3	06.3	156.3	06.3	157.3	06.3	158.3	06.3	96	8		
151.4	06.4	06.4	152.4	06.4	153.4	06.4	154.4	06.4	155.4	06.4	156.4	06.4	157.4	06.4	158.4	06.4	96	8		
151.5	06.5	06.5</																		

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.		DISTANCE.																Crse.	
Points	Degrees	153		154		155		156		157		158		159		160		Points	Degrees
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure		
0	0	153.0	00.0	154.0	00.0	155.0	00.0	156.0	00.0	157.0	00.0	158.0	00.0	159.0	00.0	160.0	00.0	0	0
1	1	153.0	02.7	154.0	02.7	155.0	02.7	156.0	02.7	157.0	02.7	158.0	02.8	159.0	02.8	160.0	02.8	1	1
2	2	152.9	05.3	153.9	05.4	154.9	05.4	155.9	05.4	156.9	05.5	157.9	05.5	158.9	05.5	159.9	05.6	2	2
3	3	152.8	07.5	153.8	07.6	154.8	07.6	155.8	07.7	156.8	07.7	157.8	07.8	158.8	07.8	159.8	07.9	3	3
4	4	152.6	09.7	153.6	09.7	154.6	09.8	155.6	09.9	156.6	10.0	157.6	10.0	158.6	10.1	159.6	10.2	4	4
5	5	152.4	11.9	153.4	11.9	154.4	12.0	155.4	12.1	156.4	12.2	157.4	12.3	158.4	12.3	159.4	12.4	5	5
6	6	152.3	14.1	153.3	14.1	154.3	14.2	155.3	14.3	156.3	14.4	157.3	14.5	158.3	14.5	159.3	14.6	6	6
7	7	152.2	16.3	153.2	16.3	154.2	16.4	155.2	16.5	156.2	16.6	157.2	16.7	158.2	16.7	159.2	16.8	7	7
8	8	151.9	18.5	152.9	18.5	153.8	18.6	154.8	18.7	155.8	18.8	156.8	18.9	157.8	18.9	158.8	19.0	8	8
9	9	151.5	20.7	152.5	20.7	153.5	20.8	154.5	20.9	155.5	21.0	156.5	21.1	157.5	21.1	158.5	21.2	9	9
10	10	151.3	22.9	152.3	22.9	153.3	23.0	154.3	23.1	155.3	23.2	156.3	23.3	157.3	23.3	158.3	23.4	10	10
11	11	151.1	25.1	152.1	25.1	153.1	25.2	154.1	25.3	155.1	25.4	156.1	25.5	157.1	25.5	158.1	25.6	11	11
12	12	150.7	27.3	151.7	27.3	152.6	27.4	153.6	27.5	154.6	27.6	155.6	27.7	156.6	27.7	157.6	27.8	12	12
13	13	150.2	29.5	151.2	29.5	152.2	29.6	153.2	29.7	154.2	29.8	155.2	29.9	156.2	29.9	157.2	30.0	13	13
14	14	150.1	31.7	151.0	31.7	152.0	31.8	153.0	31.9	154.0	32.0	155.0	32.1	156.0	32.1	157.0	32.2	14	14
15	15	149.7	33.9	150.6	33.9	151.6	34.0	152.6	34.1	153.6	34.2	154.6	34.3	155.6	34.3	156.6	34.4	15	15
16	16	149.1	36.1	150.1	36.1	151.1	36.2	152.1	36.3	153.1	36.4	154.1	36.5	155.1	36.5	156.1	36.6	16	16
17	17	148.5	38.3	149.4	38.3	150.4	38.4	151.4	38.5	152.4	38.6	153.4	38.7	154.4	38.7	155.4	38.8	17	17
18	18	148.4	40.5	149.3	40.5	150.3	40.6	151.3	40.7	152.3	40.8	153.3	40.9	154.3	40.9	155.3	41.0	18	18
19	19	147.8	42.7	148.7	42.7	149.7	42.8	150.7	42.9	151.7	43.0	152.7	43.1	153.7	43.1	154.7	43.2	19	19
20	20	147.4	44.9	148.3	44.9	149.3	45.0	150.3	45.1	151.3	45.2	152.3	45.3	153.3	45.3	154.3	45.4	20	20
21	21	146.3	47.1	147.2	47.1	148.2	47.2	149.2	47.3	150.2	47.4	151.2	47.5	152.2	47.5	153.2	47.6	21	21
22	22	145.5	49.3	146.4	49.3	147.4	49.4	148.4	49.5	149.4	49.6	150.4	49.7	151.4	49.7	152.4	49.8	22	22
23	23	144.1	51.5	145.0	51.5	146.0	51.6	147.0	51.7	148.0	51.8	149.0	51.9	150.0	51.9	151.0	52.0	23	23
24	24	143.8	53.7	144.7	53.7	145.7	53.8	146.7	53.9	147.7	54.0	148.7	54.1	149.7	54.1	150.7	54.2	24	24
25	25	142.8	55.9	143.7	55.9	144.7	56.0	145.7	56.1	146.7	56.2	147.7	56.3	148.7	56.3	149.7	56.4	25	25
26	26	141.9	58.1	142.8	58.1	143.7	58.2	144.7	58.3	145.7	58.4	146.7	58.5	147.7	58.5	148.7	58.6	26	26
27	27	141.4	60.3	142.3	60.3	143.2	60.4	144.2	60.5	145.2	60.6	146.2	60.7	147.2	60.7	148.2	60.8	27	27
28	28	140.4	62.5	141.3	62.5	142.2	62.6	143.2	62.7	144.2	62.8	145.2	62.9	146.2	62.9	147.2	63.0	28	28
29	29	139.8	64.7	140.7	64.7	141.6	64.8	142.6	64.9	143.6	65.0	144.6	65.1	145.6	65.1	146.6	65.2	29	29
30	30	138.7	66.9	139.6	66.9	140.5	67.0	141.5	67.1	142.5	67.2	143.5	67.3	144.5	67.3	145.5	67.4	30	30
31	31	138.3	69.1	139.2	69.1	140.1	69.2	141.1	69.3	142.1	69.4	143.1	69.5	144.1	69.5	145.1	69.6	31	31
32	32	137.5	71.3	138.4	71.3	139.3	71.4	140.3	71.5	141.3	71.6	142.3	71.7	143.3	71.7	144.3	71.8	32	32
33	33	136.3	73.5	137.2	73.5	138.1	73.6	139.1	73.7	140.1	73.8	141.1	73.9	142.1	73.9	143.1	74.0	33	33
34	34	135.1	75.7	136.0	75.7	136.9	75.8	137.9	75.9	138.9	76.0	139.9	76.1	140.9	76.1	141.9	76.2	34	34
35	35	134.9	77.9	135.8	77.9	136.7	78.0	137.7	78.1	138.7	78.2	139.7	78.3	140.7	78.3	141.7	78.4	35	35
36	36	133.8	80.1	134.7	80.1	135.6	80.2	136.6	80.3	137.6	80.4	138.6	80.5	139.6	80.5	140.6	80.6	36	36
37	37	132.8	82.3	133.7	82.3	134.6	82.4	135.6	82.5	136.6	82.6	137.6	82.7	138.6	82.7	139.6	82.8	37	37
38	38	131.2	84.5	132.1	84.5	133.0	84.6	134.0	84.7	135.0	84.8	136.0	84.9	137.0	84.9	138.0	85.0	38	38
39	39	130.1	86.7	131.0	86.7	131.9	86.8	132.9	86.9	133.9	87.0	134.9	87.1	135.9	87.1	136.9	87.2	39	39
40	40	129.1	88.9	130.0	88.9	130.9	89.0	131.9	89.1	132.9	89.2	133.9	89.3	134.9	89.3	135.9	89.4	40	40
41	41	127.2	91.1	128.1	91.1	129.0	91.2	130.0	91.3	131.0	91.4	132.0	91.5	133.0	91.5	134.0	91.6	41	41
42	42	126.8	93.3	127.7	93.3	128.6	93.4	129.5	93.5	130.5	93.6	131.5	93.7	132.5	93.7	133.5	93.8	42	42
43	43	125.3	95.5	126.2	95.5	127.1	95.6	128.0	95.7	129.0	95.8	130.0	95.9	131.0	95.9	132.0	96.0	43	43
44	44	124.3	97.7	125.2	97.7	126.1	97.8	127.0	97.9	128.0	98.0	129.0	98.1	130.0	98.1	131.0	98.2	44	44
45	45	122.9	99.9	123.8	99.9	124.7	100.0	125.6	100.1	126.5	100.2	127.5	100.3	128.5	100.3	129.5	100.4	45	45
46	46	122.2	102.1	123.1	102.1	124.0	102.2	124.9	102.3	125.8	102.4	126.8	102.5	127.8	102.5	128.8	102.6	46	46
47	47	121.2	104.3	122.1	104.3	123.0	104.4	123.9	104.5	124.8	104.6	125.8	104.7	126.8	104.7	127.8	104.8	47	47
48	48	120.6	106.5	121.5	106.5	122.4	106.6	123.3	106.7	124.2	106.8	125.2	106.9	126.2	106.9	127.2	107.0	48	48
49	49	119.1	108.7	120.0	108.7	120.9	108.8	121.8	108.9	122.7	109.0	123.7	109.1	124.7	109.1	125.7	109.2	49	49
50	50	117.7	110.9	118.6	110.9	119.5	111.0	120.4	111.1	121.3	111.2	122.3	111.3	123.3	111.3	124.3	111.4	50	50
51	51	116.3	113.1	117.2	113.1	118.1	113.2	119.0	113.3	120.0	113.4	121.0	113.5	122.0	113.5	123.0	113.6	51	51
52	52	114.8	115.3	115.7	115.3	116.6	115.4	117.5	115.5	118.3	115.6	119.2	115.7	120.2	115.7	121.2	115.8	52	52
53	53	113.4	117.5	114.3	117.5	115.2	117.6	116.1	117.7	117.0	117.8	118.0	117.9	119.0	117.9	120.0	118.0	53	53
54	54	111.9	119.7	112.8	119.7	113.7	119.8	114.6	120.0	116.1	120.1	117.2	120.2	118.3	120.2	121.0	118.4	54	54
55	55	110.1	121.9	111.0	121.9	111.9	122.0	112.8	122.1	114.0	122.2	115.1	122.3	116.2	122.3	123.0	119.6	55	55
56	56	108.2	124.1	109.1	124.1	110.0	124.2	110.9	124.3	111.8	124.4	112.7	124.5	113.8	124.5	125.0	121.8	56	56
57	57	106.3	126.3	107.2	126.3	108.1	126.4	109.0	126.5	110.0	126.6	110.9	126.7	111.8	126.7	127.0	124.0	57	57
58	58	104.4	128.5	105.3	128.5	106.2	128.6	107.1	128.7	108.0	128.8	108.9	128.9	109.8	128.9	129.0	126.2	58	58
59	59	102.5	130.7	103.4	130.7	104.3	130.8	105.2	130.9	106.1	131.0	106.2	131.1	107.1	131.1	127.0	128.4	59	59
60	60	100.6	132.9	101.5	132.9	102.4	133.0	103.3	133.1	104.4	133.2	105.5	133.3	106.6	133.3	127.0	130.6	60	60
61	61	98.7	135.1	99.6	135.1	100.5	135.2	101.4	135.3	102.7	135.4	103.8	135.5	104.9	135.5	127.0	133.8	61	61
62	62	96.8	137.3	97.7															

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

IN.	DISTANCE.																Crse.	
	161		162		163		164		165		166		167		168			
	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		
0	161.0	00.0	162.0	00.0	163.0	00.0	164.0	00.0	165.0	00.0	166.0	00.0	167.0	00.0	168.0	00.0	908	
1	161.0	02.8	162.0	02.8	163.0	02.8	164.0	02.9	165.0	02.9	166.0	02.9	167.0	02.9	168.0	02.9	89	
2	160.9	05.6	161.9	05.7	162.9	05.7	163.9	05.7	164.9	05.8	165.9	05.8	166.9	05.8	167.9	05.9	88	
3	160.8	07.9	161.8	08.0	162.8	08.0	163.8	08.1	164.8	08.1	165.8	08.2	166.8	08.2	167.8	08.2	87	
4	160.8	08.4	161.8	08.5	162.8	08.5	163.8	08.6	164.8	08.6	165.8	08.7	166.8	08.7	167.8	08.8	87	
5	160.6	11.2	161.6	11.3	162.6	11.4	163.6	11.4	164.6	11.5	165.6	11.6	166.6	11.6	167.6	11.7	86	
6	160.4	14.0	161.4	14.1	162.4	14.2	163.4	14.3	164.4	14.4	165.4	14.5	166.4	14.6	167.4	14.6	85	
7	160.2	15.8	161.2	15.9	162.2	16.0	163.2	16.1	164.2	16.2	165.2	16.3	166.2	16.4	167.2	16.5	84	
8	160.1	16.8	161.1	16.9	162.1	17.0	163.1	17.1	164.1	17.2	165.1	17.4	166.1	17.5	167.1	17.6	84	
9	159.8	19.6	160.8	19.7	161.8	19.9	162.8	20.0	163.8	20.1	164.8	20.2	165.8	20.4	166.7	20.5	83	
10	159.4	22.4	160.4	22.5	161.4	22.7	162.4	22.8	163.4	23.0	164.4	23.1	165.4	23.2	166.4	23.4	82	
11	159.3	23.6	160.3	23.8	161.3	23.9	162.3	24.1	163.3	24.2	164.3	24.4	165.3	24.5	166.3	24.6	82	
12	159.0	25.2	160.0	25.3	161.0	25.5	162.0	25.7	163.0	25.8	164.0	26.0	165.0	26.1	166.0	26.3	81	
13	158.6	28.0	159.6	28.1	160.6	28.3	161.6	28.5	162.6	28.7	163.6	28.8	164.6	29.0	165.6	29.2	80	
14	158.0	30.7	159.0	30.9	160.0	31.1	161.0	31.3	162.0	31.5	163.0	31.7	163.9	31.9	164.9	32.1	79	
15	157.9	31.4	158.9	31.6	159.9	31.8	160.8	32.0	161.8	32.2	162.8	32.4	163.8	32.6	164.8	32.8	78	
16	157.5	33.5	158.5	33.7	159.5	33.9	160.4	34.1	161.4	34.3	162.4	34.5	163.4	34.7	164.4	34.9	78	
17	156.9	36.2	157.8	36.4	158.8	36.7	159.8	36.9	160.8	37.1	161.7	37.3	162.7	37.6	163.7	37.8	77	
18	156.2	38.9	157.2	39.2	158.2	39.4	159.1	39.7	160.1	39.9	161.1	40.2	162.0	40.4	163.0	40.6	76	
19	156.2	39.1	157.1	39.4	158.1	39.6	159.1	39.8	160.1	40.1	161.0	40.3	162.0	40.6	163.0	40.8	75	
20	155.5	41.7	156.5	41.9	157.4	42.2	158.4	42.4	159.4	42.7	160.3	43.0	161.3	43.2	162.3	43.5	75	
21	154.8	44.4	155.7	44.7	156.7	44.9	157.6	45.2	158.6	45.5	159.6	45.8	160.5	46.0	161.5	46.3	74	
22	154.1	46.7	155.0	47.0	156.0	47.3	156.9	47.6	157.9	47.9	158.9	48.2	159.8	48.5	160.8	48.8	73	
23	154.0	47.1	154.9	47.4	155.9	47.7	156.8	47.9	157.8	48.2	158.7	48.5	159.7	48.8	160.7	49.1	73	
24	153.1	49.8	154.1	50.1	155.0	50.4	156.0	50.7	156.9	51.0	157.9	51.3	158.8	51.6	159.8	51.9	72	
25	152.2	52.4	153.2	52.7	154.1	53.1	155.1	53.4	156.0	53.7	157.0	54.0	157.9	54.4	158.8	54.7	71	
26	151.6	54.2	152.5	54.6	153.5	54.9	154.4	55.2	155.4	55.6	156.3	55.9	157.2	56.3	158.2	56.6	70	
27	151.3	55.1	152.2	55.4	153.2	55.7	154.1	56.1	155.0	56.4	156.0	56.8	156.9	57.1	157.9	57.5	70	
28	150.3	57.7	151.2	58.1	152.2	58.4	153.1	58.8	154.0	59.1	155.0	59.5	155.9	59.8	156.8	60.2	69	
29	149.3	60.3	150.2	60.7	151.1	61.1	152.1	61.4	153.0	61.8	153.9	62.2	154.8	62.6	155.8	62.9	68	
30	148.7	61.6	149.7	62.0	150.6	62.4	151.5	62.8	152.4	63.1	153.4	63.5	154.3	63.9	155.2	64.3	67	
31	148.2	62.9	149.1	63.3	150.0	63.7	151.0	64.1	151.9	64.5	152.8	64.9	153.7	65.3	154.6	65.6	67	
32	147.1	65.5	148.0	65.9	148.9	66.3	149.8	66.7	150.7	67.1	151.6	67.5	152.6	67.9	153.5	68.3	66	
33	145.9	68.0	146.8	68.5	147.7	68.9	148.6	69.3	149.5	69.7	150.4	70.2	151.4	70.6	152.3	71.0	65	
34	145.5	68.8	146.4	69.3	147.4	69.7	148.3	70.1	149.2	70.5	150.1	71.0	151.0	71.4	151.9	71.8	64	
35	144.7	70.6	145.6	71.0	146.5	71.5	147.4	71.9	148.3	72.3	149.2	72.8	150.1	73.2	151.0	73.6	64	
36	143.5	73.1	144.3	73.5	145.2	74.0	146.1	74.5	147.0	74.9	147.9	75.4	148.8	75.8	149.7	76.3	63	
37	142.2	75.6	143.0	76.1	143.9	76.5	144.8	77.0	145.7	77.5	146.6	77.9	147.5	78.4	148.3	78.9	62	
38	142.0	75.9	142.9	76.4	143.8	76.8	144.6	77.3	145.5	77.8	146.4	78.3	147.3	78.7	148.2	79.2	61	
39	140.8	78.1	141.7	78.5	142.6	79.0	143.4	79.5	144.3	80.0	145.2	80.5	146.1	81.0	146.9	81.4	61	
40	139.4	80.5	140.3	81.0	141.2	81.5	142.0	82.0	142.9	82.5	143.8	83.0	144.6	83.5	145.5	84.0	60	
41	138.1	82.8	139.0	83.3	139.8	83.8	140.7	84.3	141.5	84.8	142.4	85.3	143.2	85.9	144.1	86.4	59	
42	138.0	82.9	138.9	83.4	139.7	84.0	140.6	84.5	141.4	85.0	142.3	85.5	143.1	86.0	144.0	86.5	59	
43	136.5	85.3	137.4	85.8	138.2	86.4	139.1	86.9	139.9	87.4	140.8	88.0	141.6	88.5	142.5	89.0	58	
44	135.0	87.7	135.9	88.2	136.7	88.8	137.5	89.3	138.4	89.9	139.2	90.4	140.1	91.0	140.9	91.5	57	
45	133.9	89.4	134.7	90.0	135.5	90.5	136.4	91.1	137.2	91.7	138.0	92.2	138.9	92.8	139.7	93.3	56	
46	133.5	90.0	134.3	90.6	135.1	91.1	136.0	91.7	136.8	92.3	137.6	92.8	138.4	93.4	139.3	93.9	56	
47	131.9	92.3	132.7	92.9	133.5	93.5	134.3	94.1	135.2	94.6	136.0	95.2	136.8	95.8	137.6	96.4	55	
48	130.3	94.6	131.1	95.2	131.9	95.8	132.7	96.4	133.5	97.0	134.3	97.6	135.1	98.2	135.9	98.7	54	
49	129.3	95.9	130.1	96.5	130.9	97.1	131.7	97.7	132.5	98.3	133.3	98.9	134.1	99.5	134.9	100.1	53	
50	128.6	96.9	129.4	97.5	130.2	98.1	131.0	98.7	131.8	99.3	132.6	99.9	133.4	100.5	134.2	101.1	52	
51	126.9	99.1	127.7	99.7	128.4	100.4	129.2	101.0	130.0	101.6	130.8	102.2	131.6	102.8	132.4	103.4	51	
52	125.1	101.3	125.9	101.9	126.7	102.6	127.5	103.2	128.2	103.8	129.0	104.5	129.8	105.1	130.6	105.7	51	
53	124.5	102.1	125.2	102.8	126.0	103.4	126.8	104.0	127.5	104.7	128.3	105.3	129.1	105.9	129.9	106.6	50	
54	123.3	103.5	124.1	104.1	124.9	104.8	125.6	105.4	126.4	106.1	127.2	106.7	127.9	107.3	128.7	108.0	49	
55	121.5	105.6	122.3	106.3	123.0	106.9	123.8	107.6	124.5	108.2	125.3	108.9	126.0	109.6	126.8	110.2	48	
56	119.6	107.7	120.4	108.4	121.1	109.1	121.9	109.7	122.6	110.4	123.4	111.1	124.1	111.7	124.8	112.4	47	
57	119.3	108.1	120.0	108.8	120.8	109.5	121.5	110.1	122.3	110.8	123.0	111.5	123.7	112.2	124.5	112.8	46	
58	117.7	109.8	118.5	110.5	119.2	111.2	119.9	111.8	120.7	112.5	121.4	113.2	122.1	113.9	122.9	114.6	45	
59	115.8	111.8	116.5	112.5	113.2	113.2	119.9	111.8	120.7	112.5	121.4	113.2	122.1	113.9	122.9	114.6	44	
60	113.8	113.8	114.6	114.6	115.3	115.3	116.0	116.0	116.7	116.7	117.4	117.4	118.1	118.1	118.8	118.8	43	
OUT.	DISTANCE.																Crse.	
	161		162		163		164		165		166		167		168			
	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.		
0	161.0	00.0	162.0	00.0	163.0	00.0	164.0	00.0	165.0	00.0	166.0	00.0	167.0	00.0	168.0	00.0	908	
1	161.0	02.8	162.0	02.8	163.0	02.8	164.0	02.9	165.0	02.9	166.0	02.9	167.0	02.9	168.0	02.9	89	
2	160.9	05.6	161.9	05.7	162.9	05.7	163.9	05.7	164.9	05.8	165.9	05.8	166.9	05.8	167.9	05.9	88	
3	160.8	07.9	161.8	08.0	162.8	08.0	163.8	08.1	164.8	08.1	165.8	08.2	166.					

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.	Points	Degrees	DISTANCE.																Crse.	Points	Degrees			
			169		170		171		172		173		174		175		176							
			Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure						
0	0	0	169.0	00.0	170.0	00.0	171.0	00.0	172.0	00.0	173.0	00.0	174.0	00.0	175.0	00.0	176.0	00.0	0	0	0			
1	1	0	169.0	02.9	170.0	03.0	171.0	03.0	172.0	03.0	173.0	03.0	174.0	03.0	175.0	03.1	176.0	03.1	1	1	0			
2	2	0	168.9	05.9	169.9	05.9	170.9	06.0	171.9	06.0	172.9	06.0	173.9	06.1	174.9	06.1	175.9	06.1	2	2	0			
3	3	0	168.8	08.3	169.8	08.3	170.8	08.4	171.8	08.4	172.8	08.5	173.8	08.5	174.8	08.6	175.8	08.6	3	3	0			
4	4	0	168.8	08.8	169.8	08.8	170.8	08.9	171.8	08.9	172.8	09.1	173.8	09.1	174.8	09.2	175.8	09.2	4	4	0			
5	5	0	168.6	11.8	169.6	11.9	170.6	11.9	171.6	12.0	172.6	12.1	173.6	12.1	174.6	12.2	175.6	12.3	5	5	0			
6	6	0	168.4	14.7	169.4	14.8	170.3	14.9	171.3	15.0	172.3	15.1	173.3	15.2	174.3	15.3	175.3	15.3	6	6	0			
7	7	0	168.2	16.6	169.2	16.7	170.2	16.8	171.2	16.9	172.2	17.0	173.2	17.1	174.2	17.2	175.2	17.3	7	7	0			
8	8	0	168.1	17.7	169.1	17.8	170.1	17.9	171.1	18.0	172.1	18.1	173.0	18.2	174.0	18.3	175.0	18.4	8	8	0			
9	9	0	167.7	20.6	168.7	20.7	169.7	20.8	170.7	21.0	171.7	21.1	172.7	21.2	173.7	21.3	174.7	21.4	9	9	0			
10	10	0	167.4	23.5	168.3	23.7	169.3	23.8	170.3	23.9	171.3	24.1	172.3	24.2	173.3	24.4	174.3	24.5	10	10	0			
11	11	0	167.2	24.8	168.2	24.9	169.1	25.1	170.1	25.2	171.1	25.4	172.1	25.5	173.1	25.7	174.1	25.8	11	11	0			
12	12	0	166.9	26.4	167.9	26.6	168.9	26.8	169.9	26.9	170.9	27.1	171.9	27.2	172.8	27.4	173.8	27.5	12	12	0			
13	13	0	166.4	29.3	167.4	29.5	168.4	29.7	169.4	29.9	170.4	30.0	171.4	30.2	172.3	30.4	173.3	30.6	13	13	0			
14	14	0	165.9	32.2	166.9	32.4	167.9	32.6	168.8	32.8	169.8	33.0	170.8	33.2	171.8	33.4	172.8	33.6	14	14	0			
15	15	0	165.7	33.0	166.7	33.2	167.7	33.4	168.7	33.6	169.7	33.8	170.7	34.0	171.6	34.1	172.6	34.3	15	15	0			
16	16	0	165.3	35.1	166.3	35.3	167.3	35.5	168.2	35.8	169.2	36.0	170.2	36.2	171.2	36.4	172.2	36.6	16	16	0			
17	17	0	164.7	38.0	165.6	38.2	166.6	38.5	167.6	38.7	168.6	38.9	169.5	39.1	170.5	39.4	171.5	39.6	17	17	0			
18	18	0	164.0	40.9	165.0	41.1	165.9	41.4	166.9	41.6	167.9	41.9	168.8	42.1	169.8	42.3	170.8	42.6	18	18	0			
19	19	0	163.9	41.1	164.9	41.3	165.9	41.5	166.8	41.8	167.8	42.0	168.8	42.3	169.8	42.5	170.7	42.8	19	19	0			
20	20	0	163.2	43.7	164.2	44.0	165.2	44.3	166.1	44.5	167.1	44.8	168.1	45.0	169.0	45.3	170.0	45.6	20	20	0			
21	21	0	162.5	46.6	163.4	46.9	164.4	47.1	165.3	47.4	166.3	47.7	167.3	48.0	168.2	48.2	169.2	48.5	21	21	0			
22	22	0	161.7	49.1	162.7	49.3	163.6	49.6	164.6	49.9	165.6	50.2	166.5	50.5	167.5	50.8	168.4	51.1	22	22	0			
23	23	0	161.6	49.4	162.6	49.7	163.5	50.0	164.5	50.3	165.4	50.6	166.4	50.9	167.4	51.2	168.3	51.5	23	23	0			
24	24	0	160.7	52.2	161.7	52.5	162.6	52.8	163.6	53.2	164.5	53.5	165.5	53.8	166.4	54.1	167.4	54.4	24	24	0			
25	25	0	159.8	55.0	160.7	55.3	161.7	55.7	162.6	56.0	163.6	56.3	164.5	56.6	165.5	56.8	166.4	57.1	25	25	0			
26	26	0	159.1	56.9	160.1	57.3	161.0	57.6	161.9	57.9	162.9	58.3	163.8	58.6	164.8	59.0	165.7	59.3	26	26	0			
27	27	0	158.8	57.8	159.7	58.1	160.7	58.5	161.6	58.8	162.6	59.2	163.5	59.5	164.4	59.9	165.4	60.2	27	27	0			
28	28	0	157.8	60.6	158.7	60.9	159.6	61.3	160.6	61.6	161.5	62.0	162.4	62.4	163.4	62.7	164.3	63.1	28	28	0			
29	29	0	156.7	63.3	157.6	63.7	158.5	64.1	159.5	64.4	160.4	64.8	161.3	65.2	162.3	65.6	163.2	65.9	29	29	0			
30	30	0	156.1	66.7	157.1	65.1	158.0	65.4	158.9	65.8	159.8	66.2	160.8	66.6	161.7	67.0	162.6	67.4	30	30	0			
31	31	0	155.6	69.6	156.5	66.4	157.4	66.8	158.3	67.2	159.2	67.6	160.2	68.0	161.1	68.4	162.0	68.8	31	31	0			
32	32	0	154.4	68.7	155.3	69.1	156.2	69.6	157.1	70.0	158.0	70.4	159.0	70.8	159.9	71.2	160.8	71.6	32	32	0			
33	33	0	153.2	71.4	154.1	71.8	155.0	72.3	155.9	72.7	156.8	73.1	157.7	73.5	158.6	74.0	159.5	74.4	33	33	0			
34	34	0	152.8	72.3	153.7	72.7	154.6	73.1	155.5	73.5	156.4	74.0	157.3	74.4	158.2	74.8	159.1	75.2	34	34	0			
35	35	0	151.9	74.1	152.8	74.5	153.7	75.0	154.6	75.4	155.5	75.8	156.4	76.3	157.3	76.7	158.2	77.2	35	35	0			
36	36	0	150.6	76.7	151.5	77.2	152.4	77.6	153.3	78.1	154.1	78.5	155.0	79.0	155.9	79.4	156.8	79.9	36	36	0			
37	37	0	149.2	79.3	150.1	79.8	151.0	80.3	151.9	80.7	152.7	81.2	153.6	81.7	154.5	82.2	155.4	82.6	37	37	0			
38	38	0	149.0	79.7	149.9	80.1	150.8	80.6	151.7	81.1	152.6	81.6	153.5	82.0	154.3	82.5	155.2	83.0	38	38	0			
39	39	0	147.8	81.9	148.7	82.4	149.6	82.9	150.4	83.4	151.3	83.9	152.2	84.4	153.1	84.8	153.9	85.3	39	39	0			
40	40	0	146.4	84.5	147.2	85.0	148.1	85.5	149.0	86.0	149.8	86.5	150.7	87.0	151.6	87.5	152.4	88.0	40	40	0			
41	41	0	145.0	86.9	145.8	87.4	146.7	87.9	147.5	88.4	148.4	88.9	149.2	89.5	150.1	90.0	151.0	90.5	41	41	0			
42	42	0	144.9	87.0	145.7	87.6	146.6	88.1	147.4	88.6	148.3	89.1	149.1	89.6	150.0	90.1	150.9	90.6	42	42	0			
43	43	0	143.3	89.6	144.2	90.1	145.0	90.6	145.9	91.1	146.7	91.7	147.6	92.2	148.4	92.7	149.3	93.3	43	43	0			
44	44	0	141.7	92.0	142.6	92.6	143.4	93.1	144.3	93.7	145.1	94.2	145.9	94.8	146.8	95.3	147.6	95.9	44	44	0			
45	45	0	140.5	93.9	141.3	94.4	142.2	95.0	143.0	95.5	143.8	96.1	144.7	96.7	145.5	97.2	146.3	97.8	45	45	0			
46	46	0	140.1	94.5	140.9	95.1	141.8	95.6	142.6	96.2	143.4	96.7	144.3	97.3	145.1	97.9	145.9	98.4	46	46	0			
47	47	0	138.4	96.9	139.3	97.5	140.1	98.1	140.9	98.7	141.7	99.2	142.5	99.8	143.4	100.4	144.2	100.9	47	47	0			
48	48	0	136.7	99.3	137.5	99.9	138.3	100.5	139.2	101.0	140.0	101.7	140.8	102.3	141.6	102.9	142.4	103.5	48	48	0			
49	49	0	135.7	100.7	136.5	101.3	137.3	101.9	138.2	102.5	139.0	103.1	139.8	103.7	140.6	104.2	141.4	104.8	49	49	0			
50	50	0	135.0	101.7	135.8	102.3	136.6	102.9	137.4	103.5	138.2	104.1	139.0	104.7	139.8	105.3	140.6	105.9	50	50	0			
51	51	0	133.2	104.0	134.0	104.7	134.7	105.3	135.5	105.9	136.3	106.5	137.1	107.1	137.9	107.7	138.7	108.4	51	51	0			
52	52	0	131.3	106.4	132.1	107.0	132.9	107.6	133.7	108.2	134.4	108.9	135.2	109.5	136.0	110.1	136.8	110.8	52	52	0			
53	53	0	130.6	107.2	131.4	107.8	132.2	108.5	133.0	109.1	133.7	109.8	134.5	110.4	135.3	111.0	136.0	111.7	53	53	0			
54	54	0	129.5	108.6	130.2	109.3	131.0	109.9	131.8	110.6	132.5	111.2	133.3	111.8	134.1	112.5	134.8	113.1	54	54	0			
55	55	0	127.5	110.9	128.3	111.5	129.1	112.2	129.8	112.8	130.6	113.5	131.3	114.2	132.1	114.8	132.8	115.5	55	55	0			
56	56	0	125.6	113.1	126.3	113.8	127.1	114.4	127.8	115.1	128.6	115.8	129.3	116.4	132.1	117.1	130.8	117.8	56	56	0			
57	57	0	125.2	113.5	126.0	114.2	126.7	114.8	127.4	115.5	128.2	116.2	128.9	116.9	129.7	117.5	130.4	118.2	57	57	0			
58	58	0	123.6	115.3	124.3	115.9	125.1	116.6	125.8	1														

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Crs.
177		178		179		180		181		182		183		184		Degree Points
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	
177.0	00.0	178.0	00.0	179.0	00.0	180.0	00.0	181.0	00.0	182.0	00.0	183.0	00.0	184.0	00.0	90
177.0	03.1	178.0	03.1	179.0	03.1	180.0	03.1	181.0	03.2	182.0	03.2	183.0	03.2	184.0	03.2	89
176.9	06.2	177.9	06.2	178.9	06.2	179.9	06.3	180.9	06.3	181.9	06.4	182.9	06.4	183.9	06.4	88
176.8	08.7	177.8	08.7	178.8	08.8	179.8	08.8	180.8	08.9	181.8	08.9	182.8	09.0	183.8	09.0	87
176.8	09.3	177.8	09.3	178.8	09.4	179.8	09.4	180.8	09.5	181.8	09.5	182.7	09.6	183.7	09.6	86
176.6	12.3	177.6	12.4	178.6	12.5	179.6	12.6	180.6	12.6	181.6	12.7	182.6	12.8	183.6	12.8	85
176.3	15.4	177.3	15.5	178.3	15.6	179.3	15.7	180.3	15.8	181.3	15.9	182.3	15.9	183.3	16.0	84
176.1	17.4	177.1	17.4	178.1	17.5	179.1	17.6	180.1	17.7	181.1	17.8	182.1	17.9	183.1	18.0	83
176.0	18.5	177.0	18.6	178.0	18.7	179.0	18.8	180.0	18.9	181.0	19.0	182.0	19.1	183.0	19.2	82
175.7	21.6	176.7	21.7	177.7	21.8	178.7	21.9	179.7	22.1	180.6	22.2	181.6	22.3	182.6	22.4	81
175.3	24.6	176.3	24.8	177.3	24.9	178.2	25.1	179.2	25.2	180.2	25.3	181.2	25.5	182.2	25.6	80
175.1	26.0	176.1	26.1	177.1	26.3	178.0	26.4	179.0	26.6	180.0	26.7	181.0	26.8	182.0	27.0	79
174.8	27.7	175.8	27.8	176.8	28.0	177.8	28.2	178.8	28.3	179.8	28.5	180.7	28.6	181.7	28.8	78
174.3	30.7	175.3	30.9	176.3	31.1	177.3	31.3	178.3	31.4	179.2	31.6	180.2	31.8	181.2	32.0	77
173.7	33.8	174.7	34.0	175.7	34.2	176.7	34.3	177.7	34.5	178.7	34.7	179.6	34.9	180.6	35.1	76
173.6	34.5	174.6	34.7	175.6	34.9	176.5	35.1	177.5	35.3	178.5	35.5	179.5	35.7	180.5	35.9	75
173.1	36.8	174.1	37.0	175.1	37.2	176.1	37.4	177.0	37.6	178.0	37.8	179.0	38.0	180.0	38.3	74
172.5	39.8	173.4	40.0	174.4	40.3	175.4	40.5	176.4	40.7	177.3	40.9	178.3	41.2	179.3	41.4	73
171.7	42.8	172.7	43.1	173.7	43.3	174.7	43.5	175.5	43.8	176.6	44.0	177.6	44.3	178.5	44.5	72
171.7	43.0	172.7	43.3	173.6	43.5	174.6	43.7	175.6	44.0	176.5	44.2	177.5	44.5	178.5	44.7	71
171.0	45.8	171.9	46.1	172.9	46.3	173.9	46.6	174.8	46.8	175.8	47.1	176.8	47.4	177.7	47.6	70
170.1	48.8	171.1	49.1	172.1	49.3	173.0	49.6	174.0	49.9	174.9	50.2	175.9	50.4	176.9	50.7	69
169.4	51.4	170.3	51.7	171.3	52.0	172.2	52.3	173.2	52.5	174.2	52.8	175.1	53.1	176.1	53.4	68
169.3	51.7	170.2	52.0	171.2	52.3	172.1	52.6	173.1	52.9	174.0	53.2	175.0	53.5	176.0	53.8	67
168.3	54.7	169.3	55.0	170.2	55.3	171.2	55.6	172.1	55.9	173.1	56.2	174.0	56.6	175.0	56.9	66
167.4	57.6	168.3	58.0	169.2	58.3	170.2	58.6	171.1	58.9	172.1	59.3	173.0	59.6	174.0	59.9	65
166.7	59.6	167.6	60.0	168.5	60.3	169.5	60.6	170.4	61.0	171.4	61.3	172.3	61.7	173.2	62.0	64
166.3	60.5	167.3	60.9	168.2	61.2	169.1	61.6	170.1	61.9	171.0	62.2	172.0	62.6	172.9	62.9	63
165.2	63.4	166.2	63.8	167.1	64.1	168.0	64.5	169.0	64.9	169.9	65.2	170.8	65.6	171.8	65.9	62
164.1	66.3	165.0	66.7	166.0	67.1	166.9	67.4	167.8	67.8	168.7	68.2	169.7	68.6	170.6	68.9	61
163.5	67.7	164.5	68.1	165.4	68.5	166.3	68.9	167.2	69.3	168.1	69.6	169.1	70.0	170.0	70.4	60
162.9	69.2	163.8	69.6	164.8	69.9	165.7	70.3	166.6	70.7	167.5	71.1	168.5	71.5	169.4	71.9	59
161.7	72.0	162.6	72.4	163.5	72.8	164.4	73.2	165.4	73.6	166.3	74.0	167.2	74.4	168.1	74.8	58
160.4	74.8	161.3	75.2	162.2	75.6	163.1	76.0	164.0	76.5	164.9	76.9	165.9	77.3	166.8	77.8	57
160.0	75.7	160.9	76.1	161.8	76.5	162.7	77.0	163.6	77.4	164.5	77.8	165.4	78.2	166.3	78.7	56
159.1	77.6	160.0	78.0	160.9	78.5	161.8	78.9	162.7	79.3	163.6	79.8	164.5	80.2	165.4	80.7	55
157.7	80.4	158.6	80.8	159.5	81.3	160.4	81.7	161.3	82.2	162.2	82.6	163.1	83.1	163.9	83.5	54
156.3	83.1	157.2	83.6	158.0	84.0	158.9	84.5	159.8	85.0	160.7	85.4	161.6	85.9	162.5	86.2	53
156.1	83.4	157.0	83.9	157.9	84.4	158.7	84.9	159.6	85.3	160.5	85.8	161.4	86.3	162.3	86.7	52
154.8	85.8	155.7	86.3	156.6	86.8	157.4	87.3	158.3	87.8	159.2	88.2	160.1	88.7	160.9	89.2	51
153.3	88.5	154.2	89.0	155.0	89.5	155.9	90.0	156.8	90.5	157.6	91.0	158.5	91.5	159.3	92.0	50
151.8	91.0	152.7	91.5	153.5	92.0	154.4	92.5	155.2	93.1	156.1	93.6	157.0	94.1	157.8	94.6	49
151.7	91.2	152.6	91.7	153.4	92.2	154.3	92.7	155.1	93.2	156.0	93.7	156.9	94.3	157.7	94.8	48
150.1	93.8	151.0	94.3	151.8	94.9	152.6	95.4	153.5	95.9	154.3	96.4	155.2	97.0	156.0	97.5	47
148.4	96.4	149.3	96.9	150.1	97.5	151.0	98.0	151.8	98.6	152.6	99.1	153.5	99.7	154.3	100.2	46
147.2	98.3	148.0	98.9	148.8	99.4	149.7	100.0	150.5	100.5	151.3	101.1	152.2	101.7	153.0	102.2	45
146.7	99.0	147.6	99.5	148.4	100.1	149.2	100.7	150.1	101.2	150.9	101.8	151.7	102.3	152.5	102.9	44
145.0	101.5	145.8	102.1	146.6	102.7	147.4	103.2	148.3	103.8	149.1	104.4	149.9	105.0	150.7	105.5	43
143.2	104.0	144.0	104.6	144.8	105.2	145.6	105.8	146.4	106.4	147.2	107.0	148.1	107.6	148.9	108.2	42
142.2	105.4	143.0	106.0	143.8	106.6	144.6	107.2	145.4	107.8	146.2	108.4	147.0	109.0	147.8	109.6	41
141.4	106.5	142.2	107.1	143.0	107.7	143.8	108.3	144.6	108.9	145.4	109.5	146.2	110.1	146.9	110.7	40
139.5	109.0	140.3	109.6	141.1	110.2	141.8	110.8	142.6	111.4	143.4	112.1	144.2	112.7	145.0	113.3	39
137.6	111.4	138.3	112.0	139.1	112.6	139.9	113.3	140.7	113.9	141.4	114.5	142.2	115.2	143.0	115.8	38
136.8	112.3	137.6	112.9	138.4	113.6	139.1	114.2	139.9	114.8	140.7	115.5	141.5	116.1	142.2	116.7	37
135.6	113.8	136.4	114.4	137.1	115.1	137.9	115.7	138.7	116.3	139.4	117.0	140.2	117.6	141.0	118.3	36
133.6	116.1	134.3	116.8	135.1	117.4	135.8	118.1	136.6	118.7	137.4	119.4	138.1	120.1	138.9	120.7	35
131.5	118.4	132.3	119.1	133.0	119.8	133.8	120.4	134.5	121.1	135.3	121.8	136.0	122.5	136.7	123.1	34
131.1	118.9	131.9	119.5	132.6	120.2	133.4	120.9	134.1	121.6	134.9	122.2	135.6	122.9	136.3	123.6	33
129.4	120.7	121.4	121.9	122.1	122.8	132.4	123.4	133.1	124.1	133.8	124.8	134.6	125.5	134.6	126.5	32
127.3	123.0	123.6	123.8	124.3	124.9	129.5	125.0	130.2	125.7	130.9	126.4	131.6	127.1	132.4	127.8	31
125.2	125.2	125.9	126.6	126.6	127.3	127.3	127.3	128.0	128.0	128.7	128.7	129.4	129.4	130.1	130.1	30
Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Crs.
177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.	Points	Degrees	DISTANCE.															
			185		186		187		188		189		190		191		192	
			Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure
0	0	0	185.0	00.0	186.0	00.0	187.0	00.0	188.0	00.0	189.0	00.0	190.0	00.0	191.0	00.0	192.0	00.0
1	0	1	185.0	03.2	186.0	03.2	187.0	03.3	188.0	03.3	189.0	03.3	190.0	03.3	191.0	03.3	192.0	03.3
2	0	2	184.9	06.5	185.9	06.5	186.9	06.5	187.9	06.6	188.9	06.6	189.9	06.6	190.9	06.7	191.9	06.7
3	0	3	184.8	09.1	185.8	09.1	186.8	09.2	187.8	09.2	188.8	09.3	189.8	09.3	190.8	09.4	191.8	09.4
4	0	4	184.7	09.7	185.7	09.7	186.7	09.8	187.7	09.8	188.7	09.9	189.7	09.9	190.7	10.0	191.7	10.0
5	0	5	184.5	12.9	185.5	13.0	186.5	13.0	187.5	13.1	188.5	13.2	189.5	13.3	190.5	13.3	191.5	13.3
6	0	6	184.3	16.1	185.3	16.2	186.3	16.3	187.3	16.4	188.3	16.5	189.3	16.6	190.3	16.6	191.3	16.6
7	0	7	184.1	18.1	185.1	18.2	186.1	18.3	187.1	18.4	188.1	18.5	189.1	18.6	190.1	18.7	191.1	18.7
8	0	8	184.0	19.3	185.0	19.4	186.0	19.5	187.0	19.7	188.0	19.8	189.0	19.9	190.0	20.0	191.0	20.0
9	0	9	183.6	22.5	184.6	22.7	185.6	22.8	186.6	22.9	187.6	23.0	188.6	23.2	189.6	23.3	190.6	23.3
10	0	10	183.2	25.7	184.2	25.9	185.2	26.0	186.2	26.2	187.2	26.3	188.2	26.4	189.1	26.6	190.1	26.6
11	0	11	183.0	27.1	184.0	27.3	185.0	27.4	186.0	27.6	187.0	27.7	188.0	27.9	188.9	28.0	189.9	28.0
12	0	12	182.7	28.9	183.7	29.1	184.7	29.3	185.7	29.4	186.7	29.6	187.7	29.7	188.6	29.9	189.6	29.9
13	0	13	182.2	32.1	183.2	32.3	184.2	32.5	185.1	32.6	186.1	32.8	187.1	33.0	188.1	33.2	189.1	33.2
14	0	14	181.6	35.3	182.6	35.5	183.6	35.7	184.5	35.9	185.5	36.1	186.5	36.3	187.5	36.4	188.5	36.4
15	0	15	181.4	36.1	182.4	36.3	183.4	36.5	184.4	36.7	185.4	36.9	186.3	37.1	187.3	37.3	188.3	37.3
16	0	16	181.0	38.5	181.9	38.7	182.9	38.9	183.9	39.1	184.9	39.3	185.8	39.5	186.8	39.7	187.8	39.7
17	0	17	180.3	41.6	181.2	41.8	182.2	42.1	183.2	42.3	184.2	42.5	185.1	42.7	186.1	43.0	187.1	43.0
18	0	18	179.5	44.8	180.5	45.0	181.4	45.2	182.4	45.5	183.4	45.7	184.4	46.0	185.3	46.2	186.3	46.2
19	0	19	179.5	45.0	180.4	45.2	181.4	45.4	182.4	45.7	183.3	45.9	184.3	46.2	185.3	46.4	186.2	46.4
20	0	20	178.7	47.9	179.7	48.1	180.6	48.4	181.6	48.7	182.6	48.9	183.5	49.2	184.5	49.4	185.5	49.4
21	0	21	177.8	51.0	178.8	51.3	179.8	51.5	180.7	51.8	181.7	52.1	182.6	52.4	183.6	52.6	184.6	52.6
22	0	22	177.0	53.7	178.0	54.0	178.9	54.3	179.9	54.6	180.9	54.9	181.8	55.2	182.8	55.4	183.7	55.4
23	0	23	176.9	54.1	177.9	54.4	178.8	54.7	179.8	55.0	180.7	55.3	181.7	55.6	182.7	55.8	183.6	55.8
24	0	24	175.9	57.2	176.9	57.5	177.8	57.8	178.8	58.1	179.7	58.4	180.7	58.7	181.7	59.0	182.6	59.0
25	0	25	174.9	60.2	175.9	60.6	176.8	60.9	177.8	61.2	178.7	61.5	179.6	61.9	180.6	62.2	181.5	62.2
26	0	26	174.2	62.3	175.1	62.7	176.1	63.0	177.0	63.3	178.0	63.7	178.9	64.0	179.8	64.3	180.8	64.3
27	0	27	173.8	63.3	174.8	63.6	175.7	64.0	176.7	64.3	177.6	64.6	178.5	65.0	179.5	65.3	180.4	65.3
28	0	28	172.7	66.3	173.6	66.7	174.6	67.0	175.5	67.4	176.4	67.7	177.4	68.1	178.3	68.4	179.2	68.4
29	0	29	171.5	69.3	172.5	69.7	173.4	70.1	174.3	70.4	175.2	70.8	176.2	71.2	177.1	71.5	178.0	71.5
30	0	30	170.9	70.8	171.8	71.2	172.8	71.6	173.7	71.9	174.6	72.3	175.5	72.7	176.5	73.1	177.4	73.1
31	0	31	170.3	72.3	171.2	72.7	172.1	73.1	173.1	73.5	174.0	73.8	174.9	74.2	175.8	74.6	176.7	74.6
32	0	32	169.0	75.2	169.9	75.7	170.8	76.1	171.7	76.5	172.7	76.9	173.6	77.3	174.5	77.7	175.4	77.7
33	0	33	167.7	78.2	168.6	78.6	169.5	79.0	170.4	79.5	171.3	79.9	172.2	80.3	173.1	80.7	174.0	80.7
34	0	34	167.2	79.1	168.1	79.5	169.0	80.0	169.9	80.4	170.9	80.8	171.8	81.2	172.7	81.7	173.6	81.7
35	0	35	166.3	81.1	167.2	81.5	168.1	82.0	169.0	82.4	169.9	82.9	170.8	83.3	171.7	83.7	172.6	83.7
36	0	36	164.8	84.0	165.7	84.4	166.6	84.9	167.5	85.4	168.4	85.8	169.3	86.3	170.2	86.7	171.1	86.7
37	0	37	163.3	86.9	164.2	87.3	165.1	87.8	166.0	88.3	166.9	88.7	167.8	89.2	168.6	89.7	169.5	89.7
38	0	38	163.2	87.2	164.0	87.7	164.9	88.2	165.8	88.6	166.7	89.1	167.6	89.6	168.4	90.0	169.3	90.0
39	0	39	161.8	89.7	162.7	90.2	163.6	90.7	164.4	91.1	165.3	91.6	166.2	92.1	167.1	92.6	167.9	92.6
40	0	40	160.2	92.5	161.1	93.0	161.9	93.5	162.8	94.0	163.7	94.5	164.5	95.0	165.4	95.5	166.3	95.5
41	0	41	158.7	95.1	159.5	95.6	160.4	96.1	161.3	96.7	162.1	97.2	163.0	97.7	163.8	98.2	164.7	98.2
42	0	42	158.6	95.3	159.4	95.8	160.3	96.3	161.1	96.8	162.0	97.3	162.9	97.9	163.7	98.4	164.6	98.4
43	0	43	156.9	98.0	157.7	98.6	158.6	99.1	159.4	99.6	160.3	100.2	161.1	100.7	162.0	101.2	162.8	101.2
44	0	44	155.2	100.8	156.0	101.3	156.8	101.8	157.7	102.4	158.5	102.9	159.3	103.5	160.2	104.0	161.0	104.0
45	0	45	153.8	102.8	154.7	103.3	155.5	103.9	156.3	104.4	157.1	105.0	158.0	105.5	158.8	106.1	159.6	106.1
46	0	46	153.4	103.5	154.2	104.0	155.0	104.6	155.9	105.1	156.7	105.7	157.5	106.2	158.3	106.8	159.2	106.8
47	0	47	151.5	106.1	152.4	106.7	153.2	107.3	154.0	107.8	154.8	108.4	155.6	109.0	156.5	109.6	157.3	109.6
48	0	48	149.7	108.7	150.5	109.3	151.3	109.9	152.1	110.5	152.9	111.1	153.7	111.7	154.5	112.3	155.3	112.3
49	0	49	148.6	110.2	149.4	110.8	150.2	111.4	151.0	112.0	151.8	112.6	152.6	113.2	153.4	113.8	154.2	113.8
50	0	50	147.7	111.3	148.5	111.9	149.3	112.5	150.1	113.1	150.9	113.7	151.7	114.3	152.5	114.9	153.3	114.9
51	0	51	145.8	113.9	146.6	114.5	147.4	115.1	148.1	115.7	148.9	116.4	149.7	117.0	150.5	117.6	151.3	117.6
52	0	52	143.8	116.4	144.5	117.1	145.3	117.7	146.1	118.3	146.9	118.9	147.7	119.6	148.4	120.2	149.2	120.2
53	0	53	143.0	117.4	143.8	118.0	144.6	118.6	145.3	119.3	146.1	119.9	146.9	120.5	147.6	121.2	148.4	121.2
54	0	54	141.7	118.9	142.5	119.6	143.3	120.2	144.0	120.8	144.8	121.5	145.5	122.1	146.3	122.8	147.1	122.8
55	0	55	139.6	121.4	140.4	122.0	141.1	122.7	141.9	123.3	142.6	124.0	143.4	124.7	144.1	125.3	144.9	125.3
56	0	56	137.5	123.8	138.2	124.5	139.0	125.1	139.7	125.8	140.5	126.5	141.2	127.1	141.9	127.8	142.7	127.8
57	0	57	137.1	124.2	137.8	124.9	138.6	125.6	139.3	126.3	140.0	126.9	140.8	127.6	141.5	128.3	142.3	128.3
58	0	58	135.3	126.2	136.0	126.9	136.8	127.5	137.5	128.2	138.2	128.9	139.0	129.6	139.7	130.3	140.4	130.3
59	0	59	133.1	128.5	133.8	129.2	134.5	129.9	135.2	130.6	136.0	131.3	136.7	132.0	137.4	132.7	138.1	132.7
60	0	60	130.8	130.8	131.5	131.5	132.2	132.2	132.9	132.9	133.6	133.6	134.4	134.4	135.1	135.1	135.8	135.8
61	0	61	130.8	130.8	131.5	131.5	132.2	132.2	132.9	132.9	133.6	133.6	134.4	134.4	135.1	135.1	135.8	135.8
62	0	62	130.8	130.8	131.5	131.5	132.2	132.2	132.9	132.9	133.6	133.6	134.4	134.4	135.1	135.1	135.8	135.8
63	0	63	130.8	130.8	131.5	131.5	132.2	132.2	132.9	132.9	133.6	133.6	134.4	134.4	135.1	135.1	135.8	135.8
64	0	64	130.8	130.8	131.5	131.5	132.2	132.2	132.9	132.9	133.6	133.6	134.4	134.4	135.1	135.1	135.8	135.8

TABLE XLII.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Degrees	DISTANCE.																C. se.	
	193		194		195		196		197		198		199		200		Degrees	Points
	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure		
0	193.0	00.0	194.0	00.0	195.0	00.0	196.0	00.0	197.0	00.0	198.0	00.0	199.0	00.0	200.0	00.0	90	8
1	193.0	03.4	194.0	03.4	195.0	03.4	196.0	03.4	197.0	03.4	198.0	03.5	199.0	03.5	200.0	03.5	89	88
2	192.9	06.7	193.9	06.8	194.9	06.8	195.9	06.8	196.9	06.9	197.9	06.9	198.9	06.9	199.9	07.0	88	87
3	192.8	09.5	193.8	09.5	194.8	09.6	195.8	09.6	196.8	09.7	197.8	09.7	198.8	09.8	199.8	09.8	87	86
4	192.7	10.1	193.7	10.2	194.7	10.2	195.7	10.3	196.7	10.3	197.7	10.4	198.7	10.4	199.7	10.5	86	85
5	192.5	13.5	193.5	13.5	194.5	13.6	195.5	13.7	196.5	13.7	197.5	13.8	198.5	13.9	199.5	14.0	85	84
6	192.3	16.8	193.3	16.9	194.3	17.0	195.3	17.1	196.3	17.2	197.2	17.3	198.2	17.3	199.2	17.4	84	83
7	192.1	18.9	193.1	19.0	194.1	19.1	195.1	19.2	196.1	19.3	197.0	19.4	198.0	19.5	199.0	19.6	83	82
8	191.9	20.2	192.9	20.3	193.9	20.4	194.9	20.5	195.9	20.6	196.9	20.7	197.9	20.8	198.9	20.9	82	81
9	191.6	23.5	192.6	23.6	193.6	23.8	194.6	23.9	195.6	24.0	196.6	24.1	197.6	24.3	198.6	24.4	81	80
10	191.1	26.9	192.1	27.0	193.1	27.1	194.1	27.3	195.1	27.4	196.1	27.6	197.1	27.7	198.1	27.8	80	79
11	190.9	28.3	191.9	28.5	192.9	28.6	193.9	28.8	194.9	28.9	195.9	29.0	196.8	29.2	197.8	29.3	79	78
12	190.6	30.2	191.6	30.3	192.6	30.5	193.6	30.7	194.6	30.8	195.6	31.0	196.5	31.1	197.5	31.3	78	77
13	190.1	33.5	191.1	33.7	192.1	33.9	193.1	34.0	194.1	34.2	195.1	34.4	196.0	34.6	197.0	34.7	77	76
14	189.8	36.8	190.4	37.0	191.4	37.2	192.4	37.4	193.4	37.6	194.4	37.8	195.3	38.0	196.3	38.2	76	75
15	189.3	37.7	190.3	37.8	191.2	38.0	192.2	38.2	193.2	38.4	194.2	38.6	195.2	38.8	196.2	39.0	75	74
16	188.8	40.1	189.8	40.3	190.7	40.5	191.7	40.8	192.7	41.0	193.7	41.2	194.7	41.4	195.6	41.6	74	73
17	188.1	43.4	189.0	43.6	190.0	43.9	191.0	44.1	192.0	44.3	192.9	44.5	193.9	44.8	194.9	45.0	73	72
18	187.3	46.7	188.2	46.9	189.2	47.2	190.2	47.4	191.1	47.7	192.1	47.9	193.1	48.1	194.1	48.4	72	71
19	187.2	46.9	188.2	47.1	189.2	47.4	190.1	47.6	191.1	47.9	192.1	48.1	193.0	48.4	194.0	48.6	71	70
20	186.4	50.0	187.4	50.2	188.4	50.5	189.3	50.7	190.3	51.0	191.3	51.2	192.2	51.5	193.2	51.8	70	69
21	185.5	53.2	186.5	53.5	187.4	53.7	188.4	54.0	189.4	54.3	190.3	54.6	191.3	54.9	192.3	55.1	69	68
22	184.7	56.0	185.6	56.3	186.6	56.6	187.6	56.9	188.5	57.2	189.5	57.5	190.4	57.8	191.4	58.1	68	67
23	184.6	56.4	185.5	56.7	186.5	57.0	187.4	57.3	188.4	57.6	189.3	57.9	190.3	58.2	191.3	58.5	67	66
24	183.6	59.6	184.5	59.9	185.5	60.3	186.4	60.6	187.4	60.9	188.3	61.2	189.3	61.5	190.2	61.8	66	65
25	182.5	62.8	183.4	63.2	184.4	63.5	185.3	63.8	186.3	64.1	187.2	64.5	188.2	64.8	189.1	65.1	65	64
26	181.7	65.0	182.7	65.4	183.6	65.7	184.5	66.0	185.5	66.4	186.4	66.7	187.4	67.0	188.3	67.4	64	63
27	181.4	66.0	182.3	66.4	183.2	66.7	184.2	67.0	185.1	67.4	186.1	67.7	187.0	68.1	187.9	68.4	63	62
28	180.2	69.2	181.1	69.5	182.0	69.9	183.0	70.2	183.9	70.6	184.8	71.0	185.8	71.3	186.7	71.7	62	61
29	178.9	72.3	179.9	72.7	180.8	73.0	181.7	73.4	182.7	73.8	183.6	74.2	184.5	74.5	185.4	74.9	61	60
30	178.3	73.9	179.2	74.2	180.2	74.6	181.1	75.0	182.0	75.4	182.9	75.8	183.9	76.2	184.8	76.5	60	59
31	177.7	75.4	178.6	75.8	179.5	76.2	180.3	76.6	181.3	77.0	182.2	77.4	183.1	77.8	184.0	78.1	59	58
32	176.3	78.5	177.2	78.9	178.1	79.3	179.1	79.7	180.0	80.1	180.9	80.5	181.8	80.9	182.7	81.3	58	57
33	174.9	81.6	175.8	82.0	176.7	82.4	177.6	82.8	178.5	83.3	179.4	83.7	180.4	84.1	181.3	84.5	57	56
34	174.5	82.5	175.4	82.9	176.3	83.4	177.2	83.8	178.1	84.2	179.0	84.7	179.9	85.1	180.8	85.5	56	55
35	173.5	84.6	174.4	85.0	175.3	85.5	176.2	85.9	177.1	86.4	178.0	86.8	178.9	87.2	179.8	87.7	55	54
36	172.0	87.6	172.9	88.1	173.7	88.5	174.6	89.0	175.5	89.4	176.4	89.9	177.3	90.3	178.2	90.8	54	53
37	170.4	90.6	171.3	91.1	172.2	91.5	173.1	92.0	173.9	92.5	174.8	93.0	175.7	93.4	176.6	93.9	53	52
38	170.2	91.0	171.1	91.5	172.0	91.9	172.9	92.4	173.7	92.9	174.6	93.3	175.5	93.8	176.4	94.3	52	51
39	168.8	93.6	169.7	94.1	170.6	94.5	171.4	95.0	172.3	95.5	173.2	96.0	174.0	96.5	174.9	97.0	51	50
40	167.1	96.5	167.4	97.0	168.3	97.5	169.2	98.0	170.6	98.5	171.5	99.0	172.3	99.5	173.2	100.0	50	49
41	165.5	99.2	166.4	99.7	167.3	100.3	168.1	100.8	169.0	101.3	169.8	101.8	170.7	102.3	171.5	102.8	49	48
42	165.4	99.4	166.3	99.9	167.1	100.4	168.0	100.9	168.9	101.5	169.7	102.0	170.6	102.5	171.4	103.0	48	47
43	163.7	102.3	164.5	102.8	165.4	103.3	166.2	103.9	167.7	104.4	167.9	104.9	168.8	105.5	169.6	106.0	47	46
44	161.9	105.1	162.7	105.7	163.5	106.2	164.4	106.7	165.2	107.3	166.1	107.8	166.9	108.4	167.7	108.9	46	45
45	160.5	107.2	161.3	107.8	162.1	108.3	163.0	108.9	163.8	109.4	164.6	110.0	165.5	110.5	166.3	111.1	45	44
46	160.0	107.9	160.8	108.5	161.7	109.0	162.5	109.6	163.3	110.2	164.1	110.7	165.0	111.3	165.8	111.8	44	43
47	158.1	110.7	158.9	111.3	159.7	111.8	160.6	112.4	161.4	113.0	162.2	113.6	163.0	114.1	163.8	114.7	43	42
48	156.1	113.4	156.9	114.0	157.8	114.6	158.6	115.2	159.4	115.8	160.2	116.4	161.0	117.0	161.8	117.6	42	41
49	155.0	115.0	155.8	115.6	156.6	116.2	157.4	116.8	158.2	117.4	159.0	117.9	159.8	118.5	160.6	119.1	41	40
50	154.1	116.2	154.9	116.8	155.7	117.4	156.5	118.0	157.3	118.6	158.1	119.2	158.9	119.8	159.7	120.4	40	39
51	152.1	118.8	152.9	119.4	153.7	120.1	154.5	120.7	155.2	121.3	156.0	121.9	156.8	122.5	157.6	123.1	39	38
52	150.0	121.5	150.8	122.1	151.5	122.7	152.3	123.3	153.1	124.0	153.9	124.6	154.7	125.2	155.4	125.9	38	37
53	149.2	122.4	150.0	123.1	150.7	123.7	151.5	124.3	152.3	125.0	153.1	125.6	153.8	126.2	154.6	126.9	37	36
54	147.8	124.1	148.6	124.7	149.4	125.3	150.1	126.0	150.9	126.6	151.7	127.3	152.4	127.9	153.2	128.6	36	35
55	145.7	126.6	146.4	127.3	147.2	127.9	147.9	128.6	148.7	129.2	149.4	129.9	150.2	130.6	150.9	131.2	35	34
56	143.4	129.1	144.2	129.8	144.9	130.5	145.7	131.1	146.4	131.8	147.1	132.5	147.9	133.2	148.6	133.8	34	33
57	143.0	129.6	143.7	130.3	144.5	131.0	145.2	131.6	146.0	132.3	146.7	133.0	147.4	133.6	148.2	134.3	33	32
58	141.2	131.6	141.9	132.3	142.6	133.0	143.3	133.7	144.1	134.4	144.8	135.0	145.5	135.7	146.3	136.4	32	31
59	138.8	134.1	139.6	134.8	140.3	135.5	141.0	136.2	141.7	136.8	142.4	137.5	143.1	138.2	143.9	138.9	31	30
60	136.5	136.5	137.2	137.2	137.9	137.9	138.6	138.6	139.3	139.3	140.0	140.0	140.7	140.7	141.4	141.4	30	29
Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Distance.

TABLE XLII.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPART

Crse.		DISTANCE.															
Points	Degrees	201		202		203		204		205		206		207		208	
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.
0	0	201.0	00.0	201.0	00.0	203.0	00.0	204.0	00.0	205.0	00.0	206.0	00.0	207.0	00.0	208.0	00.0
1	0	201.0	03.5	202.0	03.5	203.0	03.5	204.0	03.6	205.0	03.6	206.0	03.6	207.0	03.6	208.0	03.6
2	0	200.9	07.0	201.0	07.0	202.9	07.1	203.9	07.1	204.9	07.2	205.9	07.2	206.9	07.2	207.9	07.2
3	0	200.8	09.9	201.8	09.9	202.8	10.0	203.8	10.0	204.8	10.1	205.8	10.1	206.8	10.2	207.8	10.2
4	0	200.7	10.5	201.7	10.6	202.7	10.6	203.7	10.7	204.7	10.7	205.7	10.8	206.7	10.8	207.7	10.8
5	0	200.5	14.0	201.5	14.1	202.5	14.2	203.5	14.2	204.5	14.3	205.5	14.4	206.5	14.4	207.5	14.4
6	0	200.2	17.5	201.2	17.6	202.2	17.7	203.2	17.8	204.2	17.9	205.2	18.0	206.2	18.0	207.2	18.0
7	0	200.0	19.7	201.0	19.8	202.0	19.9	203.0	20.0	204.0	20.1	205.0	20.2	206.0	20.3	207.0	20.3
8	0	199.9	21.0	200.9	21.1	201.9	21.2	202.9	21.3	203.9	21.4	204.9	21.5	205.9	21.6	206.9	21.6
9	0	199.5	24.5	200.5	24.6	201.5	24.7	202.5	24.9	203.5	25.0	204.5	25.1	205.5	25.2	206.4	25.2
10	0	199.0	28.0	200.0	28.1	201.0	28.3	202.0	28.4	203.0	28.5	204.0	28.7	205.0	28.8	206.0	28.8
11	0	198.8	29.5	199.8	29.6	200.8	29.8	201.8	29.9	202.8	30.1	203.8	30.2	204.8	30.4	205.7	30.4
12	0	198.5	31.4	199.5	31.6	200.5	31.8	201.5	31.9	202.5	32.1	203.5	32.2	204.5	32.4	205.4	32.4
13	0	197.9	34.4	198.9	35.1	199.9	35.3	200.9	35.4	201.9	35.6	202.9	35.8	203.9	35.9	204.8	35.9
14	0	197.3	38.9	198.3	38.5	199.3	38.7	200.3	38.9	201.2	39.1	202.2	39.3	203.2	39.5	204.2	39.5
15	0	197.1	39.2	198.1	39.4	199.1	39.6	200.1	39.8	201.1	40.0	202.0	40.2	203.0	40.4	204.0	40.4
16	0	196.6	41.8	197.6	42.0	198.6	42.2	199.5	42.4	200.5	42.6	201.5	42.8	202.5	43.0	203.5	43.0
17	0	195.8	45.2	196.8	45.4	197.8	45.7	198.8	45.9	199.7	46.1	200.7	46.3	201.7	46.6	202.7	46.6
18	0	195.0	48.6	196.0	48.9	197.0	49.1	197.9	49.4	198.9	49.6	199.9	49.8	200.9	50.1	201.8	50.1
19	0	195.0	48.8	195.9	49.1	196.9	49.3	197.9	49.6	198.9	49.8	199.8	50.1	200.8	50.3	201.8	50.3
20	0	194.2	52.0	195.1	52.3	196.1	52.5	197.0	52.8	198.0	53.1	199.0	53.3	200.0	53.6	200.9	53.6
21	0	193.2	55.4	194.2	55.7	195.1	56.0	196.1	56.2	197.1	56.5	198.0	56.8	199.0	57.1	199.9	57.1
22	0	192.3	58.3	193.3	58.6												

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Crs.
209		210		211		212		213		214		215		216		
Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Degrees Points
209.0	00.0	210.0	00.0	211.0	00.0	212.0	00.0	213.0	00.0	214.0	00.0	215.0	00.0	216.0	00.0	908
209.0	03.6	210.0	03.7	211.0	03.7	212.0	03.7	213.0	03.7	214.0	03.7	215.0	03.8	216.0	03.8	89
208.9	07.3	209.9	07.3	210.9	07.4	211.9	07.4	212.9	07.4	213.9	07.5	214.9	07.5	215.9	07.5	88
208.8	10.3	209.8	10.3	210.7	10.4	211.7	10.4	212.7	10.5	213.7	10.5	214.7	10.6	215.7	10.6	78
208.7	14.0	209.7	14.0	210.6	14.1	211.6	14.1	212.6	14.2	213.6	14.2	214.6	14.3	215.6	14.3	87
208.5	17.6	209.5	17.6	210.4	17.7	211.4	17.7	212.4	17.8	213.4	17.8	214.4	17.9	215.4	17.9	86
208.2	21.2	209.2	21.2	210.1	21.3	211.1	21.3	212.1	21.4	213.1	21.4	214.1	21.5	215.1	21.5	85
208.0	24.8	209.0	24.8	210.0	24.9	211.0	24.9	212.0	25.0	213.0	25.0	214.0	25.1	215.0	25.1	75
207.9	28.5	208.9	28.5	209.9	28.6	210.9	28.6	211.9	28.7	212.9	28.7	213.9	28.8	214.8	28.8	84
207.4	32.1	208.4	32.1	209.4	32.2	210.4	32.2	211.4	32.3	212.4	32.3	213.4	32.4	214.4	32.4	83
207.0	35.7	208.0	35.7	209.0	35.8	210.0	35.8	211.0	35.9	212.0	35.9	213.0	36.0	214.0	36.0	82
206.7	39.3	207.7	39.3	208.7	39.4	209.7	39.4	210.7	39.5	211.7	39.5	212.7	39.6	213.7	39.6	74
206.4	42.9	207.4	42.9	208.4	43.0	209.4	43.0	210.4	43.1	211.4	43.1	212.4	43.2	213.4	43.2	81
205.8	46.5	206.8	46.5	207.8	46.6	208.8	46.6	209.8	46.7	210.8	46.7	211.8	46.8	212.8	46.8	79
205.2	50.1	206.2	50.1	207.2	50.2	208.2	50.2	209.2	50.3	210.2	50.3	211.2	50.4	212.2	50.4	70
205.0	53.7	206.0	53.7	207.0	53.8	208.0	53.8	209.0	53.9	210.0	53.9	211.0	54.0	212.0	54.0	7
204.4	57.3	205.4	57.3	206.4	57.4	207.4	57.4	208.4	57.5	209.4	57.5	210.4	57.6	211.4	57.6	78
203.6	60.9	204.6	60.9	205.6	61.0	206.6	61.0	207.6	61.1	208.6	61.1	209.6	61.2	210.6	61.2	77
202.8	64.5	203.8	64.5	204.8	64.6	205.8	64.6	206.8	64.7	207.8	64.7	208.8	64.8	209.8	64.8	76
202.7	68.1	203.7	68.1	204.7	68.2	205.7	68.2	206.7	68.3	207.7	68.3	208.7	68.4	209.7	68.4	68
201.9	71.7	202.9	71.7	203.9	71.8	204.9	71.8	205.9	71.9	206.9	71.9	207.9	72.0	208.9	72.0	75
200.9	75.3	201.9	75.3	202.9	75.4	203.9	75.4	204.9	75.5	205.9	75.5	206.9	75.6	207.9	75.6	74
200.0	78.9	201.0	78.9	202.0	79.0	203.0	79.0	204.0	79.1	205.0	79.1	206.0	79.2	207.0	79.2	68
199.9	82.5	200.9	82.5	201.9	82.6	202.9	82.6	203.9	82.7	204.9	82.7	205.9	82.8	206.9	82.8	73
198.8	86.1	199.8	86.1	200.8	86.2	201.8	86.2	202.8	86.3	203.8	86.3	204.8	86.4	205.8	86.4	72
197.6	89.7	198.6	89.7	199.6	89.8	200.6	89.8	201.6	89.9	202.6	89.9	203.6	90.0	204.6	90.0	71
196.8	93.3	197.8	93.3	198.8	93.4	199.8	93.4	200.8	93.5	201.8	93.5	202.8	93.6	203.8	93.6	62
196.4	96.9	197.4	96.9	198.4	97.0	199.4	97.0	200.4	97.1	201.4	97.1	202.4	97.2	203.4	97.2	70
195.1	100.5	196.1	100.5	197.1	100.6	198.1	100.6	199.1	100.7	200.1	100.7	201.1	100.8	202.1	100.8	69
193.1	104.1	194.1	104.1	195.1	104.2	196.1	104.2	197.1	104.3	198.1	104.3	199.1	104.4	200.1	104.4	68
192.4	107.7	193.4	107.7	194.4	107.8	195.4	107.8	196.4	107.9	197.4	107.9	198.4	108.0	199.4	108.0	6
190.9	111.3	191.9	111.3	192.9	111.4	193.9	111.4	194.9	111.5	195.9	111.5	196.9	111.6	197.9	111.6	67
189.4	114.9	190.4	114.9	191.4	115.0	192.4	115.0	193.4	115.1	194.4	115.1	195.4	115.2	196.4	115.2	66
188.0	118.5	189.0	118.5	190.0	118.6	191.0	118.6	192.0	118.7	193.0	118.7	194.0	118.8	195.0	118.8	65
187.8	122.1	188.8	122.1	189.8	122.2	190.8	122.2	191.8	122.3	192.8	122.3	193.8	122.4	194.8	122.4	58
186.2	125.7	187.2	125.7	188.2	125.8	189.2	125.8	190.2	125.9	191.2	125.9	192.2	126.0	193.2	126.0	64
184.5	129.3	185.5	129.3	186.5	129.4	187.5	129.4	188.5	129.5	189.5	129.5	190.5	129.6	191.5	129.6	63
184.3	132.9	185.3	132.9	186.3	133.0	187.3	133.0	188.3	133.1	189.3	133.1	190.3	133.2	191.3	133.2	62
183.4	136.5	184.4	136.5	185.4	136.6	186.4	136.6	187.4	136.7	188.4	136.7	189.4	136.8	190.4	136.8	58
182.8	140.1	183.8	140.1	184.8	140.2	185.8	140.2	186.8	140.3	187.8	140.3	188.8	140.4	189.8	140.4	61
181.0	143.7	182.0	143.7	183.0	143.8	184.0	143.8	185.0	143.9	186.0	143.9	187.0	144.0	188.0	144.0	60
179.3	147.3	180.3	147.3	181.3	147.4	182.3	147.4	183.3	147.5	184.3	147.5	185.3	147.6	186.3	147.6	54
179.1	150.9	180.1	150.9	181.1	151.0	182.1	151.0	183.1	151.1	184.1	151.1	185.1	151.2	186.1	151.2	59
177.2	154.5	178.2	154.5	179.2	154.6	180.2	154.6	181.2	154.7	182.2	154.7	183.2	154.8	184.2	154.8	58
175.3	158.1	176.3	158.1	177.3	158.2	178.3	158.2	179.3	158.3	180.3	158.3	181.3	158.4	182.3	158.4	57
173.8	161.7	174.8	161.7	175.8	161.8	176.8	161.8	177.8	161.9	178.8	161.9	179.8	162.0	180.8	162.0	5
171.2	165.3	172.2	165.3	173.2	165.4	174.2	165.4	175.2	165.5	176.2	165.5	177.2	165.6	178.2	165.6	56
169.1	168.9	170.1	168.9	171.1	169.0	172.1	169.0	173.1	169.1	174.1	169.1	175.1	169.2	176.1	169.2	55
167.9	172.5	168.9	172.5	169.9	172.6	170.9	172.6	171.9	172.7	172.9	172.7	173.9	172.8	174.9	172.8	54
166.9	176.1	167.9	176.1	168.9	176.2	169.9	176.2	170.9	176.3	171.9	176.3	172.9	176.4	173.9	176.4	48
164.7	179.7	165.7	179.7	166.7	179.8	167.7	179.8	168.7	179.9	169.7	179.9	170.7	180.0	171.7	180.0	53
162.4	183.3	163.4	183.3	164.4	183.4	165.4	183.4	166.4	183.5	167.4	183.5	168.4	183.6	169.4	183.6	52
161.6	186.9	162.6	186.9	163.6	187.0	164.6	187.0	165.6	187.1	166.6	187.1	167.6	187.2	168.6	187.2	51
160.1	190.5	161.1	190.5	162.1	190.6	163.1	190.6	164.1	190.7	165.1	190.7	166.1	190.8	167.1	190.8	48
157.7	194.1	158.7	194.1	159.7	194.2	160.7	194.2	161.7	194.3	162.7	194.3	163.7	194.4	164.7	194.4	45
155.3	197.7	156.3	197.7	157.3	197.8	158.3	197.8	159.3	197.9	160.3	197.9	161.3	198.0	162.3	198.0	44
154.9	201.3	155.9	201.3	156.9	201.4	157.9	201.4	158.9	201.5	159.9	201.5	160.9	201.6	161.9	201.6	43
152.9	204.9	153.9	204.9	154.9	205.0	155.9	205.0	156.9	205.1	157.9	205.1	158.9	205.2	159.9	205.2	47
150.3	208.5	151.3	208.5	152.3	208.6	153.3	208.6	154.3	208.7	155.3	208.7	156.3	208.8	157.3	208.8	46
147.8	212.1	148.8	212.1	149.8	212.2	150.8	212.2	151.8	212.3	152.8	212.3	153.8	212.4	154.8	212.4	45
147.8	215.7	148.8	215.7	149.8	215.8	150.8	215.8	151.8	215.9	152.8	215.9	153.8	216.0	154.8	216.0	4
Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Degrees Points
209		210		211		212		213		214		215		216		Crs.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.	Points Degrees	DISTANCE.															
		217		218		219		220		221		222		223		224	
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure
0	0	217.0	00.0	218.0	00.0	219.0	00.0	220.0	00.0	221.0	00.0	222.0	00.0	223.0	00.0	224.0	00.0
1	1	217.0	03.8	218.0	03.8	219.0	03.8	220.0	03.8	221.0	03.9	222.0	03.9	223.0	03.9	224.0	03.9
2	2	216.9	07.6	217.9	07.6	218.9	07.6	219.9	07.7	220.9	07.7	221.9	07.7	222.9	07.8	223.9	07.8
3	3	216.7	10.7	217.7	10.7	218.7	10.8	219.7	10.8	220.7	10.8	221.7	10.9	222.7	10.9	223.7	10.9
4	4	216.7	11.4	217.7	11.4	218.7	11.5	219.7	11.5	220.7	11.6	221.7	11.6	222.7	11.7	223.7	11.7
5	5	216.5	15.1	217.5	15.2	218.5	15.3	219.5	15.3	220.5	15.4	221.5	15.5	222.5	15.6	223.5	15.6
6	6	216.2	18.9	217.2	19.0	218.2	19.1	219.2	19.2	220.2	19.3	221.2	19.3	222.2	19.4	223.2	19.4
7	7	216.0	21.3	216.9	21.4	217.9	21.5	218.9	21.6	219.9	21.7	220.9	21.8	221.9	21.9	222.9	21.9
8	8	215.8	22.7	216.8	22.8	217.8	22.9	218.8	23.0	219.8	23.1	220.8	23.2	221.8	23.3	222.8	23.3
9	9	215.4	26.4	216.4	26.6	217.4	26.7	218.4	26.8	219.4	26.9	220.4	27.1	221.4	27.2	222.4	27.2
10	10	214.9	30.2	215.9	30.3	216.9	30.5	217.9	30.6	218.8	30.8	219.8	30.9	220.8	31.0	221.8	31.0
11	11	214.6	31.8	215.6	32.0	216.6	32.1	217.6	32.3	218.6	32.4	219.6	32.6	220.6	32.7	221.6	32.7
12	12	214.3	33.9	215.3	34.1	216.3	34.3	217.3	34.4	218.3	34.6	219.3	34.7	220.3	34.9	221.3	34.9
13	13	213.7	37.7	214.7	37.9	215.7	38.0	216.7	38.2	217.6	38.4	218.6	38.5	219.6	38.7	220.6	38.7
14	14	213.0	41.4	214.0	41.6	215.0	41.8	216.0	42.0	216.9	42.2	217.9	42.4	218.9	42.6	219.9	42.6
15	15	212.8	42.3	213.8	42.5	214.8	42.7	215.8	42.9	216.7	43.1	217.7	43.3	218.7	43.5	219.7	43.5
16	16	212.3	45.1	213.3	45.3	214.3	45.5	215.3	45.7	216.2	45.9	217.1	46.2	218.1	46.4	219.1	46.4
17	17	211.4	48.8	212.4	49.0	213.4	49.3	214.4	49.5	215.3	49.7	216.3	49.9	217.3	50.2	218.3	50.2
18	18	210.6	52.5	211.5	52.7	212.5	53.0	213.5	53.2	214.4	53.5	215.4	53.7	216.4	53.9	217.4	53.9
19	19	210.5	52.7	211.5	53.0	212.4	53.2	213.4	53.5	214.4	53.7	215.3	53.9	216.3	54.2	217.3	54.2
20	20	209.6	56.2	210.6	56.4	211.5	56.7	212.5	56.9	213.5	57.2	214.4	57.5	215.4	57.7	216.4	57.7
21	21	208.6	59.8	209.6	60.1	210.5	60.4	211.5	60.6	212.4	60.9	213.4	61.2	214.4	61.5	215.4	61.5
22	22	207.7	63.0	208.6	63.3	209.6	63.6	210.5	63.9	211.5	64.2	212.4	64.4	213.4	64.7	214.4	64.7
23	23	207.5	63.4	208.5	63.7	209.4	64.0	210.4	64.3	211.3	64.6	212.3	64.9	213.3	65.2	214.3	65.2
24	24	206.4	67.1	207.3	67.4	208.3	67.7	209.2	68.0	210.2	68.3	211.1	68.6	212.1	68.9	213.0	68.9
25	25	205.2	70.6	206.1	71.0	207.1	71.3	208.0	71.6	209.0	72.0	209.9	72.3	210.9	72.6	211.8	72.6
26	26	204.3	73.1	205.3	73.4	206.2	73.8	207.1	74.1	208.1	74.5	209.0	74.8	210.0	75.1	210.9	75.1
27	27	203.9	74.2	204.9	74.6	205.8	74.9	206.7	75.2	207.7	75.6	208.6	75.9	209.6	76.3	210.5	76.3
28	28	202.6	77.8	203.5	78.1	204.5	78.5	205.4	78.8	206.3	79.2	207.3	79.6	208.2	79.9	209.1	79.9
29	29	201.2	81.3	202.1	81.7	203.1	82.0	204.0	82.4	204.9	82.8	205.8	83.2	206.8	83.5	207.7	83.5
30	30	200.5	83.0	201.4	83.4	202.3	83.8	203.3	84.2	204.2	84.6	205.1	85.0	206.0	85.3	206.0	85.3
31	31	199.7	84.8	200.7	85.2	201.6	85.6	202.5	86.0	203.4	86.4	204.4	86.7	205.3	87.1	206.2	87.1
32	32	198.2	88.3	199.2	88.7	200.1	89.1	201.0	89.5	201.9	89.9	202.8	90.3	203.7	90.7	204.6	90.7
33	33	196.7	91.7	197.6	92.1	198.5	92.6	199.4	93.0	200.3	93.4	201.2	93.8	202.1	94.2	203.0	94.2
34	34	196.2	92.8	197.1	93.2	198.0	93.6	198.9	94.1	199.8	94.5	200.7	94.9	201.6	95.3	202.5	95.3
35	35	195.0	95.1	195.9	95.6	196.8	96.0	197.7	96.4	198.6	96.9	199.5	97.3	200.4	97.8	201.3	97.8
36	36	193.3	98.5	194.2	99.0	195.1	99.4	196.0	99.9	196.9	100.3	197.8	100.7	198.7	101.2	199.6	101.2
37	37	191.6	101.9	192.5	102.3	193.4	102.8	194.2	103.3	195.1	103.8	196.0	104.2	196.9	104.7	197.8	104.7
38	38	191.4	102.3	192.3	102.8	193.1	103.2	194.0	103.7	194.9	104.2	195.8	104.7	196.7	105.1	197.6	105.1
39	39	189.8	105.2	190.7	105.7	191.5	106.2	192.4	106.7	193.3	107.1	194.2	107.6	195.0	108.1	195.9	108.1
40	40	187.9	108.5	188.8	109.0	189.7	109.5	190.5	110.0	191.4	110.5	192.3	111.0	193.1	111.5	194.0	111.5
41	41	186.1	111.6	187.0	112.1	187.8	112.6	188.7	113.1	189.6	113.6	190.4	114.1	191.3	114.6	192.1	114.6
42	42	186.0	111.8	186.9	112.3	187.7	112.8	188.6	113.3	189.4	113.8	190.3	114.3	191.1	114.9	192.0	114.9
43	43	184.0	115.0	184.9	115.5	185.7	116.1	186.6	116.6	187.4	117.1	188.3	117.6	189.1	118.2	190.0	118.2
44	44	182.0	118.2	182.8	118.7	183.7	119.3	184.5	119.8	185.3	120.4	186.2	120.9	187.0	121.5	187.9	121.5
45	45	180.4	120.5	181.3	121.1	182.1	121.7	182.9	122.2	183.8	122.8	184.6	123.3	185.4	123.9	186.2	123.9
46	46	179.9	121.3	180.7	121.9	181.6	122.5	182.4	123.0	183.2	123.6	184.0	124.1	184.9	124.7	185.7	124.7
47	47	177.8	124.5	178.6	125.0	179.4	125.6	180.2	126.2	181.0	126.8	181.9	127.3	182.7	127.9	183.5	127.9
48	48	175.6	127.5	176.4	128.1	177.2	128.7	178.0	129.3	178.8	129.9	179.6	130.5	180.4	131.1	181.2	131.1
49	49	174.3	129.3	175.1	129.9	175.9	130.5	176.7	131.1	177.5	131.6	178.3	132.2	179.1	132.8	179.9	132.8
50	50	173.3	130.6	174.1	131.2	174.9	131.8	175.7	132.4	176.5	133.0	177.3	133.6	178.1	134.2	178.9	134.2
51	51	171.0	133.6	171.8	134.2	172.6	134.8	173.4	135.4	174.2	136.1	174.9	136.7	175.7	137.3	176.5	137.3
52	52	168.6	136.6	169.4	137.2	170.2	137.8	171.0	138.5	171.7	139.1	172.5	139.7	173.3	140.3	174.1	140.3
53	53	167.7	137.7	168.5	138.3	169.3	138.9	170.1	139.6	170.8	140.2	171.6	140.8	172.4	141.5	173.2	141.5
54	54	166.2	139.5	167.0	140.1	167.8	140.8	168.5	141.4	169.3	142.1	170.1	142.7	170.8	143.3	171.6	143.3
55	55	163.8	142.4	164.5	143.0	165.3	143.7	166.0	144.3	166.8	145.0	167.5	145.6	168.3	146.3	169.1	146.3
56	56	161.3	145.2	162.0	145.9	162.7	146.5	163.5	147.2	164.2	147.9	165.0	148.5	165.7	149.2	166.5	149.2
57	57	160.8	145.7	161.5	146.4	162.3	147.1	163.0	147.7	163.8	148.4	164.5	149.1	165.2	149.8	166.0	149.8
58	58	158.7	148.0	159.4	148.7	160.2	149.4	160.9	150.0	161.6	150.7	162.4	151.4	163.1	152.1	163.8	152.1
59	59	156.1	150.7	156.8	151.4	157.5	152.1	158.3	152.8	159.0	153.5	159.7	154.2	160.4	154.9	161.1	154.9
60	60	153.4	153.4	154.1	154.1	154.9	154.9	155.6	155.6	156.3	156.3	157.0	157.0	157.7	157.7	158.4	157.7
Crse.	Points Degrees	DISTANCE.															
		217		218		219		220		221		222		223		224	
		Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Crse.
225		226		227		228		229		230		231		232		
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees Points
225.0	00.0	226.0	00.0	227.0	00.0	228.0	00.0	229.0	00.0	230.0	00.0	231.0	00.0	232.0	00.0	908
225.0	03.9	226.0	03.9	227.0	04.0	228.0	04.0	229.0	04.0	230.0	04.0	231.0	04.0	232.0	04.0	89
224.9	07.9	225.9	07.9	226.9	07.9	227.9	08.0	228.9	08.0	229.9	08.0	230.9	08.1	231.9	08.1	88
224.7	11.0	225.7	11.1	226.7	11.1	227.7	11.2	228.7	11.2	229.7	11.3	230.7	11.3	231.7	11.4	74
224.7	11.8	225.7	11.8	226.7	11.9	227.7	11.9	228.7	12.0	229.7	12.0	230.7	12.1	231.7	12.1	87
224.5	15.7	225.4	15.8	226.4	15.8	227.4	15.9	228.4	16.0	229.4	16.0	230.4	16.1	231.4	16.2	86
224.1	19.6	225.1	19.7	226.1	19.8	227.1	19.9	228.1	20.0	229.1	20.0	230.1	20.1	231.1	20.2	85
223.9	22.1	224.9	22.2	225.9	22.2	226.9	22.3	227.9	22.4	228.9	22.5	229.9	22.6	230.9	22.7	74
223.8	23.5	224.8	23.6	225.8	23.7	226.8	23.8	227.7	23.9	228.7	24.0	229.7	24.1	230.7	24.3	84
223.3	27.4	224.3	27.5	225.3	27.7	226.3	27.8	227.3	27.9	228.3	28.0	229.3	28.2	230.3	28.3	83
222.8	31.3	223.8	31.5	224.8	31.6	225.8	31.7	226.8	31.9	227.8	32.0	228.8	32.1	229.7	32.3	82
222.6	33.0	223.5	33.2	224.5	33.3	225.5	33.4	226.5	33.6	227.5	33.7	228.5	33.9	229.5	34.0	74
222.1	35.2	223.2	35.4	224.2	35.5	225.2	35.7	226.2	35.8	227.2	36.0	228.2	36.1	229.1	36.3	81
221.6	39.1	222.6	39.2	223.6	39.4	224.5	39.6	225.5	39.8	226.5	39.9	227.5	40.1	228.5	40.3	80
220.9	42.9	221.8	43.1	222.8	43.3	223.8	43.5	224.8	43.7	225.8	43.9	226.8	44.1	227.7	44.3	79
220.7	43.9	221.7	44.1	222.6	44.3	223.6	44.5	224.6	44.7	225.6	44.9	226.6	45.1	227.5	45.3	7
220.1	46.8	221.1	47.0	222.0	47.2	223.0	47.4	224.0	47.6	225.0	47.8	226.0	48.0	226.9	48.2	78
219.2	50.6	220.2	50.8	221.2	51.1	222.2	51.3	223.1	51.5	224.1	51.7	225.1	52.0	226.1	52.2	77
218.3	54.4	219.3	54.7	220.3	54.9	221.2	55.2	222.2	55.4	223.2	55.6	224.1	55.9	225.1	56.1	76
218.3	54.7	219.2	54.9	220.2	55.2	221.2	55.4	222.1	55.6	223.1	55.9	224.1	56.1	225.0	56.4	64
217.3	58.2	218.3	58.5	219.3	58.8	220.2	59.0	221.2	59.3	222.2	59.5	223.1	59.8	224.1	60.0	75
216.3	62.0	217.2	62.3	218.2	62.6	219.2	62.8	220.1	63.1	221.1	63.4	222.1	63.7	223.0	63.9	74
215.3	65.3	216.3	65.6	217.2	65.9	218.2	66.2	219.1	66.5	220.1	66.8	221.1	67.1	222.0	67.3	64
215.2	65.8	216.1	66.1	217.1	66.4	218.0	66.7	219.0	67.0	220.0	67.2	220.9	67.5	221.9	67.8	73
214.0	69.5	214.9	69.8	215.9	70.1	216.8	70.5	217.8	70.8	218.7	71.1	219.7	71.4	220.6	71.7	72
212.7	73.3	213.7	73.6	214.6	73.9	215.6	74.2	216.5	74.6	217.5	74.9	218.4	75.2	219.4	75.5	71
211.8	75.8	212.8	76.1	213.7	76.5	214.7	76.8	215.6	77.1	216.6	77.5	217.5	77.8	218.4	78.2	64
211.4	77.0	212.4	77.3	213.3	77.6	214.2	78.0	215.2	78.3	216.1	78.7	217.1	79.0	218.0	79.3	70
210.1	80.6	211.0	81.0	211.9	81.3	212.9	81.7	213.8	82.1	214.7	82.4	215.7	82.8	216.6	83.1	69
208.6	84.3	209.5	84.7	210.5	85.0	211.4	85.4	212.3	85.8	213.3	86.2	214.2	86.5	215.1	86.9	68
207.9	86.1	208.8	86.5	209.7	86.9	210.6	87.3	211.6	87.6	212.5	88.0	213.4	88.4	214.3	88.8	6
207.1	87.9	208.0	88.3	209.9	88.7	210.8	89.1	211.8	89.5	212.7	89.9	213.6	90.3	214.5	90.6	67
205.5	91.5	206.5	91.9	207.4	92.3	208.3	92.7	209.2	93.1	210.1	93.5	211.0	94.0	211.9	94.4	66
203.9	95.1	204.8	95.5	205.7	95.9	206.6	96.4	207.5	96.8	208.5	97.2	209.4	97.6	210.3	98.0	65
203.4	96.2	204.3	96.6	205.2	97.1	206.1	97.5	207.0	97.9	207.9	98.3	208.8	98.8	209.7	99.2	54
202.2	98.6	203.1	99.1	204.0	99.5	204.9	99.9	205.8	100.4	206.7	100.8	207.6	101.3	208.5	101.7	64
200.5	102.1	201.4	102.6	202.3	103.1	203.1	103.5	204.0	104.0	204.9	104.4	205.8	104.9	206.7	105.3	63
198.7	105.6	199.5	106.1	200.4	106.6	201.3	107.0	202.2	107.5	203.1	108.0	204.0	108.4	204.8	108.9	62
198.4	106.1	199.3	106.5	200.2	107.0	201.1	107.5	202.0	107.9	202.8	108.4	203.7	108.9	204.6	109.4	54
196.8	109.1	197.7	109.6	198.5	110.1	199.4	110.5	200.3	111.0	201.2	111.5	202.0	112.0	202.9	112.5	61
194.9	112.5	195.7	113.0	196.6	113.5	197.5	114.0	198.3	114.5	199.2	115.0	200.1	115.5	200.9	116.0	60
193.0	115.7	193.8	116.2	194.7	116.7	195.6	117.2	196.4	117.7	197.3	118.2	198.1	118.8	199.0	119.3	54
192.9	115.9	193.7	116.4	194.6	116.9	195.4	117.4	196.3	117.9	197.1	118.5	198.0	119.0	198.9	119.5	59
190.8	119.2	191.7	119.8	192.5	120.3	193.4	120.8	194.2	121.4	195.1	121.9	195.9	122.4	196.7	122.9	58
188.7	122.5	189.5	123.1	190.4	123.6	191.2	124.2	192.1	124.7	192.9	125.3	193.7	125.8	194.6	126.4	57
187.1	125.0	187.9	125.5	188.7	126.1	189.6	126.7	190.4	127.2	191.2	127.8	192.1	128.3	192.9	128.9	5
186.5	125.8	187.4	126.4	188.2	126.9	189.0	127.5	189.8	128.1	190.7	128.6	191.5	129.2	192.3	129.7	56
184.3	129.1	185.1	129.6	185.9	130.2	186.8	130.8	187.6	131.3	188.4	131.9	189.2	132.5	190.0	133.1	55
182.9	132.3	182.8	132.8	183.6	133.4	184.5	134.0	185.3	134.6	186.1	135.2	186.9	135.8	187.7	136.4	54
180.7	134.0	181.5	134.6	182.3	135.2	183.1	135.8	183.9	136.4	184.7	137.0	185.5	137.6	186.3	138.2	44
179.7	135.4	180.5	136.0	181.3	136.6	182.1	137.2	182.9	137.8	183.7	138.4	184.5	139.0	185.3	139.6	53
177.3	138.5	178.1	139.1	178.9	139.8	179.7	140.4	180.5	141.0	181.2	141.6	182.0	142.2	182.8	142.8	52
174.9	141.6	175.6	142.2	176.4	142.9	177.2	143.5	178.0	144.1	178.7	144.7	179.5	145.4	180.3	146.0	51
173.9	142.7	174.7	143.4	175.5	144.0	176.2	144.6	177.0	145.3	177.8	145.9	178.6	146.5	179.3	147.2	45
172.4	144.6	173.1	145.3	173.9	145.9	174.7	146.6	175.4	147.2	176.2	147.8	177.0	148.5	177.7	149.1	50
169.8	147.6	170.6	148.3	171.3	148.9	172.1	149.6	172.8	150.2	173.6	150.9	174.3	151.5	175.1	152.2	49
167.2	150.6	168.0	151.2	168.7	151.9	169.4	152.6	170.2	153.2	170.9	153.9	171.7	154.6	172.4	155.2	48
166.7	151.1	167.5	151.8	168.2	152.4	168.9	153.1	169.7	153.8	170.4	154.5	171.2	155.1	171.9	155.8	44
164.6	153.4	165.3	154.1	166.0	154.8	166.7	155.5	167.5	156.2	168.2	156.9	168.9	157.5	169.7	158.2	47
162.9	156.3	162.6	157.0	163.3	157.7	164.0	158.4	164.7	159.1	165.4	159.8	166.2	160.5	166.9	161.2	46
161.9	159.1	161.8	159.8	162.5	160.5	163.2	161.2	163.9	161.9	162.6	162.6	163.3	163.3	164.0	164.0	45
225	226	227	228	229	230	231	232	DISTANCE.								Crse.
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.									Degrees Points

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.	Points Degrees	DISTANCE.															
		233		234		235		236		237		238		239		240	
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure
0	0	233.0	00.0	234.0	00.0	235.0	00.0	236.0	00.0	237.0	00.0	238.0	00.0	239.0	00.0	240.0	00.0
1	1	233.0	04.1	234.0	04.1	235.0	04.1	236.0	04.1	237.0	04.1	238.0	04.2	239.0	04.2	240.0	04.0
2	2	232.9	08.1	233.9	08.2	234.9	08.2	235.9	08.2	236.9	08.3	237.9	08.3	238.9	08.3	239.9	08.0
3	3	232.7	11.4	233.7	11.5	234.7	11.5	235.7	11.6	236.7	11.6	237.7	11.7	238.7	11.7	239.7	11.0
4	4	232.7	12.2	233.7	12.2	234.7	12.3	235.7	12.4	236.7	12.4	237.7	12.5	238.7	12.5	239.7	11.5
5	5	232.4	16.3	233.4	16.3	234.4	16.4	235.4	16.5	236.4	16.5	237.4	16.6	238.4	16.7	239.4	16.0
6	6	232.1	20.3	233.1	20.4	234.1	20.5	235.1	20.6	236.1	20.7	237.1	20.7	238.1	20.8	239.1	20.0
7	7	231.9	22.8	232.9	22.9	233.9	23.0	234.9	23.1	235.9	23.2	236.9	23.3	237.9	23.4	238.9	22.5
8	8	231.7	24.4	232.7	24.5	233.7	24.6	234.7	24.7	235.7	24.8	236.7	24.9	237.7	25.0	238.7	24.0
9	9	231.3	28.4	232.3	28.5	233.3	28.6	234.3	28.8	235.3	28.9	236.3	29.0	237.3	29.1	238.3	28.0
10	10	230.7	32.4	231.7	32.6	232.7	32.7	233.7	32.8	234.7	33.0	235.7	33.1	236.7	33.3	237.7	32.0
11	11	230.5	34.2	231.5	34.3	232.5	34.5	233.5	34.6	234.5	34.8	235.5	34.9	236.5	35.1	237.5	34.0
12	12	230.1	36.4	231.1	36.6	232.1	36.8	233.1	36.9	234.1	37.1	235.1	37.2	236.1	37.4	237.1	36.0
13	13	229.5	40.5	230.5	40.6	231.5	40.8	232.5	41.0	233.5	41.2	234.5	41.3	235.5	41.5	236.5	40.0
14	14	228.7	44.5	229.7	44.6	230.7	44.8	231.7	45.0	232.7	45.2	233.7	45.4	234.7	45.6	235.7	44.0
15	15	228.5	45.5	229.5	45.7	230.5	45.8	231.5	46.0	232.5	46.2	233.5	46.4	234.5	46.6	235.5	45.0
16	16	227.9	48.4	228.9	48.7	229.9	48.9	230.9	49.1	231.9	49.3	232.9	49.5	233.9	49.7	234.9	48.0
17	17	227.0	52.4	228.0	52.6	229.0	52.9	230.0	53.1	231.0	53.3	232.0	53.5	233.0	53.8	234.0	52.0
18	18	226.1	56.4	227.1	56.6	228.1	56.9	229.1	57.1	230.1	57.3	231.1	57.6	232.1	57.8	233.1	56.0
19	19	226.0	56.6	227.0	56.9	228.0	57.1	229.0	57.3	230.0	57.6	231.0	57.8	232.0	58.1	233.0	56.5
20	20	225.1	60.3	226.1	60.6	227.1	60.8	228.1	61.1	229.1	61.3	230.1	61.6	231.1	61.9	232.1	60.0
21	21	224.0	64.2	225.0	64.5	226.0	64.8	227.0	65.1	228.0	65.3	229.0	65.6	230.0	65.9	231.0	64.0
22	22	223.0	67.6	224.0	67.9	225.0	68.2	226.0	68.5	227.0	68.8	228.0	69.1	229.0	69.4	230.0	67.0
23	23	222.8	68.1	223.8	68.4	224.7	68.7	225.7	69.0	226.6	69.3	227.6	69.6	228.6	69.9	229.6	68.0
24	24	221.6	72.0	222.5	72.3	223.5	72.6	224.4	72.9	225.4	73.2	226.4	73.5	227.4	73.8	228.4	71.0
25	25	220.3	75.9	221.3	76.2	222.2	76.5	223.1	76.8	224.1	77.2	225.0	77.5	226.0	77.8	227.0	75.0
26	26	219.4	78.5	220.3	78.8	221.3	79.2	222.2	79.5	223.1	79.8	224.1	80.2	225.0	80.5	226.0	78.0
27	27	218.9	79.7	219.9	80.0	220.8	80.4	221.8	80.7	222.7	81.1	223.6	81.4	224.6	81.7	225.6	79.0
28	28	217.5	83.5	218.5	83.9	219.4	84.2	220.3	84.6	221.3	84.9	222.2	85.3	223.1	85.6	224.1	83.0
29	29	216.0	87.3	217.0	87.7	217.9	88.0	218.8	88.4	219.7	88.8	220.7	89.2	221.6	89.5	222.5	87.0
30	30	215.3	89.2	216.2	89.5	217.1	89.9	218.0	90.3	219.0	90.7	219.9	91.1	220.8	91.5	221.7	89.0
31	31	214.5	91.0	215.4	91.4	216.3	91.8	217.2	92.2	218.2	92.6	219.1	93.0	220.0	93.4	221.3	91.0
32	32	212.9	94.8	213.8	95.2	214.7	95.6	215.6	96.0	216.5	96.4	217.4	96.8	218.3	97.2	219.3	94.0
33	33	211.2	98.5	212.1	98.9	213.0	99.3	213.9	99.7	214.8	100.2	215.7	100.6	216.6	101.0	217.5	98.0
34	34	210.6	99.6	211.5	100.0	212.4	100.5	213.3	100.9	214.2	101.3	215.1	101.8	216.1	102.2	217.0	99.0
35	35	209.4	102.1	210.3	102.6	211.2	103.0	212.1	103.5	213.0	103.9	213.9	104.3	214.8	104.8	215.7	102.0
36	36	207.6	105.8	208.5	106.2	209.4	106.7	210.3	107.1	211.2	107.6	212.1	108.0	213.0	108.5	213.8	105.0
37	37	205.7	109.4	206.6	109.9	207.5	110.3	208.4	110.8	209.3	111.3	210.1	111.7	211.1	112.2	211.9	109.0
38	38	205.5	109.8	206.4	110.3	207.3	110.8	208.1	111.2	209.0	111.7	209.9	112.2	210.8	112.7	211.7	109.5
39	39	203.8	113.0	204.7	113.4	205.5	113.9	206.4	114.4	207.3	114.9	208.2	115.4	209.0	115.9	209.9	113.0
40	40	201.8	116.5	202.6	117.0	203.5	117.5	204.4	118.0	205.2	118.5	206.1	119.0	207.0	119.5	207.8	116.0
41	41	199.9	119.8	200.7	120.3	201.6	120.8	202.4	121.3	203.3	121.8	204.1	122.4	205.0	122.9	205.9	119.0
42	42	199.7	120.0	200.6	120.5	201.4	121.0	202.3	121.5	203.1	122.1	204.0	122.6	204.9	123.1	205.7	120.0
43	43	197.6	123.5	198.4	124.0	199.3	124.5	200.1	125.1	201.0	125.6	201.8	126.1	202.7	126.7	203.5	123.0
44	44	195.4	126.9	196.2	127.4	197.1	128.0	197.9	128.5	198.8	129.1	199.6	129.6	200.4	130.2	201.3	126.0
45	45	193.7	129.4	194.6	130.0	195.4	130.5	196.2	131.1	197.1	131.7	197.9	132.2	198.7	132.8	199.6	129.0
46	46	193.2	130.3	194.0	130.9	194.8	131.4	195.7	132.0	196.5	132.5	197.3	133.1	198.1	133.6	199.0	130.0
47	47	190.9	133.6	191.7	134.2	192.5	134.8	193.3	135.4	194.1	135.9	195.0	136.5	195.8	137.1	196.6	133.0
48	48	188.5	137.0	189.3	137.5	190.1	138.1	190.9	138.7	191.7	139.3	192.5	139.9	193.4	140.5	194.2	137.0
49	49	187.1	138.8	188.0	139.4	188.8	140.0	189.6	140.6	190.4	141.2	191.2	141.8	192.0	142.4	192.8	138.0
50	50	186.1	140.2	186.9	140.8	187.7	141.4	188.5	142.0	189.3	142.6	190.1	143.2	190.9	143.8	191.7	140.0
51	51	183.6	143.4	184.4	144.1	185.2	144.7	186.0	145.3	186.8	145.9	187.5	146.5	188.3	147.1	189.1	143.0
52	52	181.1	146.6	181.9	147.3	182.6	147.9	183.4	148.5	184.2	149.1	185.0	149.8	185.7	150.4	186.5	146.0
53	53	180.1	147.8	180.9	148.4	181.7	149.1	182.4	149.7	183.2	150.4	184.0	151.0	184.7	151.6	185.5	147.0
54	54	178.5	149.8	179.3	150.4	180.0	151.1	180.8	151.7	181.6	152.3	182.3	153.0	183.1	153.6	183.9	149.0
55	55	175.8	152.9	176.6	153.5	177.4	154.2	178.1	154.8	178.9	155.5	179.6	156.1	180.4	156.8	181.1	152.0
56	56	173.2	155.9	173.9	156.6	174.6	157.2	175.4	157.9	176.1	158.6	176.9	159.3	177.6	159.9	178.4	155.0
57	57	172.6	156.5	173.4	157.1	174.1	157.8	174.9	158.5	175.6	159.2	176.3	159.8	177.1	160.5	177.8	156.0
58	58	170.4	158.9	171.1	159.6	171.9	160.3	172.6	161.0	173.3	161.6	174.1	162.3	174.8	163.0	175.3	158.0
59	59	167.6	161.9	168.3	162.6	169.0	163.2	169.8	163.9	170.5	164.6	171.2	165.3	171.9	166.0	172.6	161.0
60	60	164.8	164.8	165.5	165.5	166.2	166.2	166.9	166.9	167.6	167.6	168.3	168.3	169.0	169.0	169.7	164.0
Crse.	Points Degrees	DISTANCE.															
		233		234		235		236		237		238		239		240	
		Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Crs.
241		242		243		244		245		246		247		248		
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees Points
241.0	00.0	242.0	00.0	243.0	00.0	244.0	00.0	245.0	00.0	246.0	00.0	247.0	00.0	248.0	00.0	90 8
241.0	04.2	242.0	04.2	243.0	04.2	244.0	04.3	245.0	04.3	246.0	04.3	247.0	04.3	248.0	04.3	89 88
240.9	08.4	241.9	08.4	242.9	08.5	243.9	08.5	244.9	08.6	245.9	08.6	246.8	08.6	247.8	08.7	88 7
240.7	11.8	241.7	11.9	242.7	11.9	243.7	12.0	244.7	12.0	245.7	12.1	246.7	12.1	247.7	12.2	87 7
240.7	12.6	241.7	12.7	242.7	12.7	243.7	12.8	244.7	12.8	245.7	12.9	246.7	12.9	247.7	13.0	86 7
240.4	16.8	241.4	16.9	242.4	17.0	243.4	17.0	244.4	17.1	245.4	17.2	246.4	17.2	247.4	17.3	85 8
240.1	21.0	241.1	21.1	242.1	21.2	243.1	21.3	244.1	21.4	245.1	21.4	246.1	21.5	247.1	21.6	84 8
239.8	25.2	240.8	25.3	241.8	25.4	242.8	25.5	243.8	25.6	244.8	25.7	245.8	25.8	246.8	25.9	83 8
239.7	25.2	240.7	25.3	241.7	25.4	242.7	25.5	243.7	25.6	244.7	25.7	245.7	25.8	246.7	25.9	82 8
239.2	29.4	240.2	29.5	241.2	29.6	242.2	29.7	243.2	29.9	244.2	30.0	245.2	30.1	246.2	30.2	81 7
238.7	33.5	239.6	33.7	240.6	33.8	241.6	34.0	242.6	34.1	243.6	34.2	244.6	34.4	245.6	34.5	80 7
238.4	35.4	239.4	35.5	240.4	35.7	241.4	35.8	242.3	35.9	243.3	36.1	244.3	36.2	245.3	36.4	79 7
238.0	37.7	239.0	37.9	240.0	38.0	241.0	38.2	242.0	38.3	243.0	38.5	244.0	38.6	245.0	38.8	78 7
237.3	41.8	238.3	42.0	239.3	42.2	240.3	42.4	241.3	42.5	242.3	42.7	243.2	42.9	244.2	43.1	77 7
236.6	46.0	237.6	46.2	238.5	46.4	239.5	46.6	240.5	46.7	241.5	46.9	242.5	47.1	243.4	47.3	76 7
236.4	47.0	237.3	47.2	238.3	47.4	239.3	47.6	240.3	47.8	241.3	48.0	242.3	48.2	243.2	48.4	75 7
235.7	50.1	236.7	50.3	237.7	50.5	238.7	50.7	239.6	50.9	240.6	51.1	241.6	51.4	242.6	51.6	74 7
234.8	54.2	235.8	54.4	236.8	54.7	237.7	54.9	238.7	55.1	239.7	55.3	240.7	55.6	241.6	55.8	73 7
233.8	58.3	234.8	58.5	235.8	58.8	236.8	59.0	237.7	59.3	238.7	59.5	239.7	59.8	240.6	60.0	72 7
233.8	58.6	234.7	58.8	235.7	59.0	236.7	59.3	237.7	59.5	238.6	59.8	239.6	60.0	240.6	60.2	71 7
232.8	62.4	233.8	62.6	234.7	62.9	235.7	63.2	236.7	63.4	237.6	63.7	238.6	63.9	239.5	64.2	70 7
231.7	66.4	232.6	66.7	233.6	67.0	234.5	67.3	235.5	67.5	236.5	67.8	237.4	68.1	238.4	68.4	69 7
230.6	70.0	231.6	70.2	232.5	70.5	233.5	70.8	234.5	71.1	235.4	71.4	236.4	71.7	237.3	72.0	68 7
230.5	70.5	231.4	70.8	232.4	71.0	233.3	71.3	234.3	71.6	235.3	71.9	236.2	72.2	237.2	72.5	67 7
229.2	74.5	230.2	74.8	231.1	75.1	232.1	75.4	233.0	75.7	234.0	76.0	235.0	76.3	236.0	76.6	66 7
227.9	78.5	228.8	78.8	229.8	79.1	230.7	79.4	231.7	79.8	232.6	80.1	233.5	80.4	234.5	80.7	65 7
226.9	81.2	227.9	81.5	228.8	81.9	229.7	82.2	230.7	82.5	231.6	82.9	232.6	83.2	233.5	83.5	64 7
226.5	82.4	227.4	82.8	228.3	83.1	229.3	83.5	230.2	83.8	231.2	84.1	232.1	84.5	233.0	84.8	63 7
225.3	86.4	226.3	86.7	227.2	87.1	228.2	87.4	229.2	87.8	229.7	88.2	230.6	88.5	231.5	88.9	62 7
223.5	90.3	224.4	90.7	225.3	91.0	226.2	91.4	227.2	91.8	228.1	92.2	229.0	92.5	229.9	92.9	61 7
222.7	92.2	223.6	92.6	224.5	93.0	225.4	93.4	226.4	93.8	227.3	94.1	228.2	94.5	229.1	94.9	60 7
221.8	94.2	222.8	94.6	223.7	95.0	224.6	95.3	225.5	95.7	226.4	96.1	227.3	96.5	228.3	96.9	59 7
220.2	98.0	221.1	98.4	222.0	98.8	222.9	99.2	223.8	99.7	224.7	100.1	225.6	100.5	226.5	100.9	58 7
218.4	101.9	219.3	102.3	220.2	102.7	221.1	103.1	222.0	103.5	222.9	104.0	223.8	104.4	224.7	104.8	57 7
217.9	103.0	218.8	103.5	219.7	103.9	220.6	104.3	221.5	104.8	222.4	105.2	223.3	105.6	224.2	106.0	56 7
216.6	105.6	217.5	106.1	218.4	106.5	219.3	107.0	220.2	107.4	221.1	107.8	222.0	108.3	223.0	108.7	55 7
214.7	109.4	215.6	109.9	216.5	110.3	217.4	110.8	218.3	111.2	219.2	111.7	220.1	112.1	221.0	112.6	54 7
212.8	113.4	213.7	113.6	214.6	114.1	215.4	114.6	216.3	115.0	217.2	115.5	218.1	116.0	219.0	116.4	53 7
212.5	113.6	213.4	114.1	214.3	114.5	215.2	115.0	216.1	115.5	217.0	116.0	217.8	116.4	218.7	116.9	52 7
210.8	116.8	211.7	117.3	212.5	117.8	213.4	118.3	214.3	118.8	215.2	119.3	216.0	119.7	216.9	120.2	51 7
208.7	120.5	209.6	121.0	210.4	121.5	211.3	122.0	212.2	122.5	213.0	123.0	213.9	123.5	214.8	124.0	50 7
206.7	123.9	207.6	124.4	208.4	124.9	209.3	125.4	210.1	126.0	211.0	126.5	211.9	127.0	212.7	127.5	49 7
206.6	124.1	207.4	124.6	208.3	125.2	209.1	125.7	210.0	126.2	210.9	126.7	211.7	127.2	212.6	127.7	48 7
204.4	127.7	205.2	128.2	206.1	128.8	206.9	129.3	207.8	129.8	208.6	130.4	209.5	130.9	210.3	131.4	47 7
202.1	131.3	203.0	131.8	203.8	132.3	204.6	132.9	205.5	133.4	206.3	134.0	207.2	134.5	208.0	135.1	46 7
200.4	133.9	201.2	134.4	202.0	135.0	202.9	135.5	203.7	136.1	204.5	136.7	205.4	137.2	206.2	137.8	45 7
199.8	134.8	200.6	135.3	201.5	135.9	202.3	136.4	203.1	137.0	203.9	137.6	204.8	138.1	205.6	138.7	44 7
197.4	138.2	198.2	138.8	199.1	139.4	199.9	140.0	200.7	140.5	201.5	141.1	202.3	141.7	203.1	142.2	43 7
195.0	141.7	195.8	142.2	196.6	142.8	197.4	143.4	198.2	144.0	199.0	144.6	199.8	145.2	200.6	145.8	42 7
193.6	143.6	194.4	144.2	195.2	144.8	196.0	145.4	196.8	145.9	197.6	146.5	198.4	147.1	199.2	147.7	41 7
192.5	145.0	193.3	145.6	194.1	146.2	194.9	146.8	195.7	147.4	196.5	148.0	197.3	148.6	198.1	149.3	40 7
189.9	148.4	190.7	149.0	191.5	149.6	192.3	150.2	193.1	150.8	193.9	151.5	194.6	152.1	195.4	152.7	39 7
187.3	151.7	188.1	152.3	188.8	152.9	189.6	153.6	190.4	154.2	191.2	154.8	192.0	155.4	192.7	156.1	38 7
186.3	152.9	187.1	153.5	187.8	154.2	188.6	154.8	189.4	155.4	190.2	156.1	190.9	156.7	191.7	157.3	37 7
184.6	154.9	185.4	155.6	186.1	156.2	186.9	156.8	187.7	157.5	188.4	158.1	189.2	158.8	190.0	159.4	36 7
181.9	158.1	182.6	158.8	183.4	159.4	184.1	160.1	184.9	160.7	185.7	161.4	186.4	162.0	187.2	162.7	35 7
179.1	161.3	179.8	161.9	180.6	162.6	181.3	163.3	182.1	163.9	182.8	164.6	183.6	165.3	184.3	165.9	34 7
178.6	161.8	179.3	162.5	180.1	163.2	180.8	163.9	181.5	164.5	182.3	165.2	183.0	165.9	183.8	166.5	33 7
176.3	164.4	177.0	165.0	177.7	165.7	178.5	166.4	179.2	167.1	179.9	167.8	180.6	168.5	181.4	169.1	32 7
174.4	167.4	175.1	168.1	175.8	168.8	176.5	169.5	177.2	170.2	177.9	170.9	177.7	171.6	178.4	172.3	31 7
172.4	170.4	173.1	171.1	173.8	171.8	174.5	172.5	175.2	173.2	175.9	173.9	177.7	174.7	175.4	175.4	30 7
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Crs.
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257

DISTANCE.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Crse.	Points Degrees	DISTANCE.															
		249		250		251		252		253		254		255		256	
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure
0	0	249.0	00.0	250.0	00.0	251.0	00.0	252.0	00.0	253.0	00.0	254.0	00.0	255.0	00.0	256.0	00.0
1	1	249.0	04.3	250.0	04.4	251.0	04.4	252.0	04.4	253.0	04.4	254.0	04.4	255.0	04.5	256.0	04.5
2	2	248.8	08.7	249.8	08.7	250.8	08.8	251.8	08.8	252.8	08.8	253.8	08.9	254.8	08.9	255.8	09.0
3	3	248.7	12.2	249.7	12.3	250.7	12.3	251.7	12.4	252.7	12.4	253.7	12.5	254.7	12.5	255.7	12.6
4	4	248.7	13.0	249.7	13.1	250.7	13.1	251.7	13.2	252.7	13.2	253.7	13.3	254.7	13.3	255.7	13.4
5	5	248.4	17.4	249.4	17.4	250.4	17.5	251.4	17.6	252.4	17.6	253.4	17.7	254.4	17.8	255.4	17.8
6	6	248.1	21.7	249.0	21.8	250.0	21.9	251.0	22.0	252.0	22.1	253.0	22.1	254.0	22.2	255.0	22.3
7	7	247.8	24.4	248.8	24.5	249.8	24.6	250.8	24.7	251.8	24.8	252.8	24.9	253.8	25.0	254.8	25.1
8	8	247.6	26.0	248.6	26.1	249.6	26.2	250.6	26.3	251.6	26.4	252.6	26.6	253.6	26.7	254.6	26.8
9	9	247.1	30.3	248.1	30.5	249.1	30.6	250.1	30.7	251.1	30.8	252.1	31.0	253.1	31.1	254.1	31.2
10	10	246.6	34.7	247.6	34.8	248.6	34.9	249.5	35.1	250.5	35.2	251.5	35.3	252.5	35.5	253.5	35.6
11	11	246.3	36.5	247.3	36.7	248.3	36.8	249.3	37.0	250.3	37.1	251.3	37.3	252.3	37.4	253.3	37.5
12	12	245.9	39.0	246.9	39.1	247.9	39.3	248.9	39.4	249.9	39.6	250.9	39.7	251.9	39.9	252.9	40.0
13	13	245.2	43.2	246.2	43.4	247.2	43.6	248.2	43.8	249.2	43.9	250.2	44.1	251.2	44.3	252.2	44.5
14	14	244.4	47.5	245.4	47.7	246.4	47.9	247.4	48.1	248.4	48.3	249.3	48.5	250.3	48.7	251.3	48.9
15	15	244.2	48.6	245.2	48.8	246.2	49.0	247.2	49.2	248.1	49.4	249.1	49.6	250.1	49.7	251.1	49.9
16	16	243.6	51.8	244.5	52.0	245.5	52.2	246.5	52.4	247.5	52.6	248.4	52.8	249.4	53.0	250.4	53.2
17	17	242.6	56.0	243.6	56.2	244.6	56.5	245.5	56.7	246.5	56.9	247.5	57.1	248.5	57.4	249.4	57.6
18	18	241.6	60.2	242.6	60.5	243.5	60.7	244.5	61.0	245.5	61.2	246.5	61.4	247.4	61.7	248.4	61.9
19	19	241.5	60.5	242.5	60.7	243.5	61.0	244.4	61.2	245.4	61.5	246.4	61.7	247.4	62.0	248.3	62.2
20	20	240.5	64.4	241.5	64.7	242.4	65.0	243.4	65.2	244.4	65.5	245.3	65.7	246.3	66.0	247.3	66.2
21	21	239.4	68.6	240.3	68.9	241.3	69.2	242.2	69.5	243.2	69.7	244.2	70.0	245.1	70.3	246.1	70.5
22	22	238.3	72.3	239.2	72.6	240.2	72.9	241.1	73.2	242.1	73.4	243.1	73.7	244.0	74.0	245.0	74.2
23	23	238.1	72.8	239.1	73.1	240.0	73.4	241.0	73.7	241.9	74.0	242.9	74.3	243.9	74.6	244.8	74.9
24	24	236.8	76.9	237.8	77.3	238.7	77.6	239.7	77.9	240.6	78.2	241.6	78.5	242.5	78.8	243.5	79.1
25	25	235.4	81.1	236.4	81.4	237.3	81.7	238.3	82.0	239.2	82.4	240.2	82.7	241.1	83.0	242.1	83.3
26	26	234.4	83.9	235.4	84.2	236.3	84.6	237.3	84.9	238.2	85.2	239.2	85.6	240.1	85.9	241.0	86.2
27	27	234.0	85.2	235.0	85.5	236.0	85.8	237.0	86.2	238.0	86.5	239.0	86.9	240.0	87.2	241.0	87.5
28	28	233.5	89.2	234.4	89.6	235.3	89.9	236.3	90.3	237.2	90.7	238.2	91.0	239.1	91.4	240.1	91.7
29	29	230.9	93.3	231.8	93.7	232.7	94.0	233.7	94.4	234.6	94.8	235.5	95.2	236.4	95.5	237.4	95.8
30	30	230.0	95.3	231.0	95.7	232.0	96.1	233.0	96.4	234.0	96.8	235.0	97.2	236.0	97.5	237.0	97.8
31	31	229.2	97.3	230.1	97.7	231.0	98.1	232.0	98.5	233.0	98.9	234.0	99.2	235.0	99.6	236.0	99.9
32	32	227.5	101.3	228.4	101.7	229.3	102.1	230.2	102.5	231.1	102.9	232.0	103.3	233.0	103.7	234.0	104.0
33	33	225.7	105.2	226.6	105.7	227.5	106.1	228.4	106.5	229.3	106.9	230.2	107.3	231.1	107.8	232.0	108.0
34	34	225.1	106.5	226.0	106.9	227.0	107.3	228.0	107.7	229.0	108.2	230.0	108.6	231.0	109.0	232.0	109.4
35	35	223.8	109.2	224.7	109.6	225.6	110.0	226.5	110.5	227.4	110.9	228.3	111.3	229.2	111.8	230.1	112.1
36	36	221.9	113.0	222.8	113.5	223.6	114.0	224.5	114.4	225.4	114.9	226.3	115.3	227.2	115.8	228.1	116.1
37	37	219.9	116.0	220.7	117.4	221.6	117.8	222.5	118.3	223.4	118.8	224.3	119.2	225.2	119.7	226.0	120.1
38	38	219.6	117.4	220.5	117.8	221.4	118.3	222.2	118.8	223.1	119.3	224.0	119.7	224.9	120.2	225.8	120.5
39	39	217.8	120.7	218.7	121.2	219.5	121.7	220.4	122.2	221.3	122.7	222.2	123.1	223.0	123.6	224.5	124.8
40	40	215.6	124.5	216.5	125.0	217.4	125.5	218.2	126.0	219.1	126.5	220.0	127.0	220.8	127.5	221.7	127.9
41	41	213.6	128.0	214.4	128.5	215.3	129.0	216.1	129.6	217.0	130.1	217.9	130.6	218.7	131.1	219.6	131.1
42	42	211.4	128.2	212.3	128.8	213.2	129.3	214.1	129.8	215.0	130.3	217.7	130.8	218.6	131.3	219.4	131.1
43	43	211.2	131.9	212.0	132.5	212.9	133.0	213.7	133.5	214.6	134.1	215.4	134.6	216.3	135.1	217.1	135.1
44	44	208.8	135.6	209.7	136.2	210.5	136.7	211.3	137.2	212.2	137.8	213.0	138.3	213.9	138.9	214.7	139.1
45	45	207.0	138.3	207.9	138.9	208.7	139.4	209.5	140.0	210.4	140.5	211.2	141.1	212.0	141.7	212.9	142.1
46	46	206.4	139.2	207.3	139.8	208.1	140.4	208.9	140.9	209.7	141.5	210.6	142.0	211.4	142.6	212.2	142.1
47	47	204.0	142.8	204.8	143.4	205.6	144.0	206.4	144.5	207.2	145.1	208.1	145.7	208.9	146.3	209.7	146.1
48	48	201.4	146.4	202.3	146.9	203.1	147.5	203.9	148.1	204.7	148.7	205.5	149.3	206.3	149.9	207.1	149.1
49	49	200.0	148.3	200.8	148.9	201.6	149.5	202.4	150.1	203.2	150.7	204.0	151.3	204.8	151.9	205.6	151.1
50	50	198.9	149.9	199.7	150.5	200.5	151.1	201.3	151.7	202.1	152.3	202.9	152.9	203.7	153.5	204.5	154.1
51	51	196.2	153.3	197.0	153.9	197.8	154.5	198.6	155.1	199.4	155.8	200.2	156.4	200.9	157.0	201.7	158.1
52	52	193.5	156.7	194.3	157.3	195.1	158.0	195.8	158.6	196.6	159.2	197.4	159.8	198.2	160.5	198.9	160.1
53	53	192.5	158.0	193.3	158.6	194.0	159.2	194.8	159.9	195.6	160.5	196.3	161.1	197.1	161.8	197.9	161.1
54	54	190.7	160.1	191.5	160.7	192.3	161.3	193.0	162.0	193.8	162.6	194.6	163.3	195.3	163.9	196.1	163.1
55	55	187.9	163.4	188.7	164.0	189.4	164.7	190.2	165.3	190.9	166.0	191.7	166.6	192.5	167.3	193.2	167.1
56	56	185.0	166.6	185.8	167.3	186.5	168.0	187.3	168.6	188.0	169.3	188.8	170.0	189.5	170.6	190.2	169.2
57	57	184.5	167.2	185.2	167.9	186.0	168.6	186.7	169.2	187.5	169.9	188.2	170.6	188.9	171.2	189.7	170.1
58	58	182.1	169.8	182.8	170.5	183.6	171.2	184.3	171.9	185.0	172.5	185.8	173.2	186.5	173.9	187.2	171.1
59	59	179.1	173.0	179.8	173.7	180.6	174.4	181.3	175.1	182.0	175.7	182.7	176.4	183.4	177.1	184.2	174.1
60	60	176.1	176.1	176.8	176.8	177.5	177.5	178.2	178.2	178.9	178.9	179.6	179.6	180.3	180.3	181.0	181.0
Crse.	Points Degrees	DISTANCE.															
		249		250		251		252		253		254		255		256	
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure

TABLE XLII.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.														Crse.
257		258		259		260		261		262		263		Degrees Points
Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	
257.0	00.0	258.0	00.0	259.0	00.0	260.0	00.0	261.0	00.0	262.0	00.0	263.0	00.0	90.8
257.0	04.5	258.0	04.5	259.0	04.5	260.0	04.5	261.0	04.6	262.0	04.6	263.0	04.6	89
256.8	09.0	257.8	09.0	258.8	09.0	259.8	09.1	260.8	09.1	261.8	09.1	262.8	09.2	88
256.7	12.6	257.7	12.7	258.7	12.7	259.7	12.8	260.7	12.8	261.7	12.9	262.7	13.0	74
256.6	13.5	257.6	13.5	258.6	13.6	259.6	13.6	260.6	13.7	261.6	13.7	262.6	13.8	87
256.4	17.9	257.4	18.0	258.4	18.1	259.4	18.1	260.4	18.2	261.4	18.3	262.4	18.4	86
256.0	22.4	257.0	22.5	258.0	22.6	259.0	22.7	260.0	22.7	261.0	22.8	262.0	23.0	85
255.8	25.2	256.8	25.3	257.8	25.4	258.8	25.5	259.8	25.6	260.8	25.7	261.8	25.9	74
255.6	26.9	256.6	27.0	257.6	27.1	258.6	27.2	259.6	27.3	260.6	27.4	261.6	27.6	84
255.1	31.3	256.1	31.4	257.1	31.6	258.1	31.7	259.1	31.8	260.1	31.9	261.1	32.2	83
254.5	35.8	255.5	35.9	256.5	36.0	257.5	36.2	258.5	36.3	259.5	36.5	260.5	36.7	82
254.2	37.7	255.2	37.9	256.2	38.0	257.2	38.1	258.2	38.3	259.2	38.4	260.2	38.7	74
253.8	40.2	254.8	40.4	255.8	40.5	256.8	40.7	257.8	40.8	258.8	41.0	259.8	41.3	81
253.1	44.6	254.1	44.8	255.1	45.0	256.1	45.1	257.1	45.3	258.1	45.5	259.1	45.8	80
252.3	49.0	253.3	49.2	254.3	49.4	255.3	49.6	256.3	49.8	257.3	50.0	258.3	50.4	79
252.1	50.1	253.1	50.3	254.1	50.5	255.1	50.7	256.1	50.9	257.1	51.1	258.1	51.5	7
251.4	53.4	252.4	53.6	253.4	53.8	254.4	54.1	255.4	54.3	256.4	54.5	257.4	54.9	78
250.4	57.8	251.4	58.0	252.4	58.3	253.4	58.5	254.4	58.7	255.4	58.9	256.4	59.2	77
249.4	62.2	250.4	62.4	251.4	62.7	252.4	62.9	253.4	63.1	254.4	63.4	255.4	63.9	76
249.3	62.4	250.3	62.7	251.3	62.9	252.3	63.2	253.3	63.4	254.3	63.7	255.3	64.1	63
248.2	66.5	249.2	66.8	250.2	67.0	251.2	67.3	252.2	67.6	253.2	67.8	254.2	68.1	75
247.0	70.8	248.0	71.1	249.0	71.4	249.9	71.7	250.9	71.9	251.9	72.2	252.8	72.8	74
245.9	74.6	246.9	74.9	247.8	75.2	248.8	75.5	249.8	75.8	250.7	76.1	251.7	76.6	61
244.8	75.1	245.7	75.4	246.7	75.7	247.6	76.0	248.6	76.3	249.6	76.6	250.5	77.2	73
244.4	79.4	245.4	79.7	246.4	80.0	247.3	80.3	248.2	80.7	249.2	81.0	250.1	81.6	72
243.0	83.7	243.9	84.0	244.9	84.3	245.8	84.6	246.8	85.0	247.7	85.3	248.7	86.0	71
242.0	86.6	242.9	86.9	243.9	87.3	244.8	87.6	245.7	87.9	246.7	88.3	247.6	88.9	64
241.5	87.9	242.4	88.2	243.4	88.6	244.3	88.9	245.3	89.3	246.2	89.6	247.1	90.0	70
239.9	92.1	240.9	92.5	241.8	92.8	242.7	93.2	243.7	93.5	244.6	93.9	245.5	94.3	69
238.3	96.3	239.2	96.6	240.1	97.0	241.1	97.4	242.0	97.8	242.9	98.1	243.8	98.9	68
237.4	98.3	238.4	98.7	239.3	99.1	240.2	99.5	241.1	99.9	242.1	100.3	243.0	101.0	6
236.6	100.4	237.5	100.8	238.4	101.2	239.3	101.6	240.3	102.0	241.2	102.4	242.1	103.2	67
234.8	104.5	235.7	104.9	236.6	105.3	237.5	105.8	238.4	106.2	239.3	106.6	240.3	107.4	66
232.9	108.6	233.8	109.0	234.7	109.5	235.6	109.9	236.5	110.3	237.5	110.7	238.4	111.6	65
232.3	109.9	233.2	110.3	234.1	110.7	235.0	111.2	235.9	111.6	236.8	112.0	237.7	112.9	54
231.0	112.7	231.9	113.1	232.8	113.5	233.7	114.0	234.6	114.4	235.5	114.9	236.4	115.3	64
229.0	116.7	229.9	117.1	230.8	117.6	231.7	118.0	232.6	118.5	233.5	118.9	234.4	119.9	63
226.9	120.7	227.8	121.1	228.7	121.6	229.6	122.1	230.5	122.5	231.4	123.0	232.3	123.9	62
226.7	121.1	227.5	121.6	228.4	122.1	229.3	122.6	230.2	123.0	231.1	123.5	231.9	124.4	54
224.8	124.6	225.7	125.0	226.6	125.6	227.5	126.1	228.4	126.6	229.3	127.0	230.2	127.8	61
222.6	128.5	223.4	129.0	224.3	129.5	225.2	130.0	226.1	130.5	227.0	131.0	227.8	131.5	60
220.4	132.1	221.3	132.6	222.2	133.2	223.0	133.7	223.9	134.2	224.7	134.7	225.6	135.2	51
219.3	132.4	221.1	132.9	222.0	133.4	222.9	133.9	223.7	134.4	224.6	134.9	225.4	135.5	59
217.9	136.2	218.8	136.7	219.6	137.2	220.5	137.8	221.3	138.3	222.2	138.8	223.0	139.9	58
215.5	140.0	216.4	140.5	217.2	141.1	218.1	141.6	218.9	142.2	219.7	142.7	220.6	143.2	57
213.7	142.8	214.5	143.3	215.4	143.9	216.2	144.4	217.0	145.0	217.8	145.5	218.7	146.1	5
213.1	143.7	213.9	144.3	214.7	144.8	215.5	145.4	216.4	145.9	217.2	146.5	218.0	147.1	56
210.5	147.4	211.3	148.0	212.2	148.6	213.0	149.1	213.8	149.7	214.6	150.3	215.4	150.9	55
207.9	151.1	208.7	151.6	209.5	152.2	210.3	152.8	211.2	153.4	212.0	154.0	212.8	154.6	54
206.4	153.1	207.2	153.7	208.0	154.3	208.8	154.9	209.6	155.5	210.4	156.1	211.2	156.7	44
205.2	154.7	206.0	155.3	206.8	155.9	207.6	156.5	208.4	157.1	209.2	157.7	210.0	158.3	53
202.5	158.2	203.3	158.8	204.1	159.5	204.9	160.1	205.7	160.7	206.5	161.3	207.2	161.9	52
199.7	161.7	200.5	162.4	201.3	163.0	202.1	163.6	202.8	164.3	203.6	164.9	204.4	165.5	51
198.7	163.0	199.4	163.7	200.2	164.3	201.0	164.9	201.8	165.6	202.5	166.2	203.3	166.8	42
196.9	165.2	197.6	165.8	198.4	166.5	199.2	167.1	199.9	167.8	200.7	168.4	201.5	169.1	50
194.0	168.6	194.7	169.3	195.5	169.9	196.2	170.6	197.0	171.2	197.7	171.9	198.5	172.5	49
191.0	172.0	191.7	172.6	192.5	173.3	193.2	174.0	194.0	174.6	194.7	175.3	195.4	176.0	48
190.4	172.6	191.2	173.3	191.9	173.9	192.6	174.6	193.4	175.3	194.1	175.9	194.9	176.6	44
188.0	175.3	188.7	176.0	189.4	176.6	190.2	177.3	190.9	178.0	191.6	178.7	192.3	179.4	47
184.9	178.5	185.6	179.2	186.3	179.9	187.0	180.6	187.7	181.3	188.5	182.0	189.2	183.4	46
181.7	181.7	182.4	182.4	183.1	183.1	183.8	183.8	184.6	184.6	185.3	185.3	186.0	186.0	45.4
257	258	259	260	261	262	263	264	DISTANCE.		Crse.				
Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure							

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse.		DISTANCE.															
Points	Degrees	265		266		267		268		269		270		271		272	
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure
0	0	265.0	00.0	266.0	00.0	267.0	00.0	268.0	00.0	269.0	00.0	270.0	00.0	271.0	00.0	272.0	00.0
1	0	265.0	04.6	266.0	04.6	267.0	04.7	268.0	04.7	269.0	04.7	270.0	04.7	271.0	04.7	272.0	04.7
2	0	264.8	09.2	265.8	09.3	266.8	09.3	267.8	09.4	268.8	09.4	269.8	09.4	270.8	09.5	271.8	09.5
3	0	264.7	13.0	265.7	13.1	266.7	13.1	267.7	13.2	268.7	13.2	269.7	13.3	270.7	13.3	271.7	13.3
4	0	264.6	16.9	265.6	16.9	266.6	16.9	267.6	16.9	268.6	16.9	269.6	16.9	270.6	16.9	271.6	16.9
5	0	264.4	20.8	265.4	20.8	266.4	20.8	267.4	20.8	268.4	20.8	269.4	20.8	270.4	20.8	271.4	20.8
6	0	264.0	24.7	265.0	24.7	266.0	24.7	267.0	24.7	268.0	24.7	269.0	24.7	270.0	24.7	271.0	24.7
7	0	263.7	28.6	264.7	28.6	265.7	28.6	266.7	28.6	267.7	28.6	268.7	28.6	269.7	28.6	270.7	28.6
8	0	263.5	32.5	264.5	32.5	265.5	32.5	266.5	32.5	267.5	32.5	268.5	32.5	269.5	32.5	270.5	32.5
9	0	263.0	36.4	264.0	36.4	265.0	36.4	266.0	36.4	267.0	36.4	268.0	36.4	269.0	36.4	270.0	36.4
10	0	262.4	40.3	263.4	40.3	264.4	40.3	265.4	40.3	266.4	40.3	267.4	40.3	268.4	40.3	269.4	40.3
11	0	262.1	44.2	263.1	44.2	264.1	44.2	265.1	44.2	266.1	44.2	267.1	44.2	268.1	44.2	269.1	44.2
12	0	261.7	48.1	262.7	48.1	263.7	48.1	264.7	48.1	265.7	48.1	266.7	48.1	267.7	48.1	268.7	48.1
13	0	261.0	52.0	262.0	52.0	263.0	52.0	264.0	52.0	265.0	52.0	266.0	52.0	267.0	52.0	268.0	52.0
14	0	260.1	55.9	261.1	55.9	262.1	55.9	263.1	55.9	264.1	55.9	265.1	55.9	266.1	55.9	267.1	55.9
15	0	259.9	59.8	260.9	59.8	261.9	59.8	262.9	59.8	263.9	59.8	264.9	59.8	265.9	59.8	266.9	59.8
16	0	259.2	63.7	260.2	63.7	261.2	63.7	262.2	63.7	263.2	63.7	264.2	63.7	265.2	63.7	266.2	63.7
17	0	258.2	67.6	259.2	67.6	260.2	67.6	261.2	67.6	262.2	67.6	263.2	67.6	264.2	67.6	265.2	67.6
18	0	257.1	71.5	258.1	71.5	259.1	71.5	260.1	71.5	261.1	71.5	262.1	71.5	263.1	71.5	264.1	71.5
19	0	255.7	75.4	256.7	75.4	257.7	75.4	258.7	75.4	259.7	75.4	260.7	75.4	261.7	75.4	262.7	75.4
20	0	254.7	79.3	255.7	79.3	256.7	79.3	257.7	79.3	258.7	79.3	259.7	79.3	260.7	79.3	261.7	79.3
21	0	253.6	83.2	254.6	83.2	255.6	83.2	256.6	83.2	257.6	83.2	258.6	83.2	259.6	83.2	260.6	83.2
22	0	252.0	87.1	253.0	87.1	254.0	87.1	255.0	87.1	256.0	87.1	257.0	87.1	258.0	87.1	259.0	87.1
23	0	249.5	91.0	250.5	91.0	251.5	91.0	252.5	91.0	253.5	91.0	254.5	91.0	255.5	91.0	256.5	91.0
24	0	249.0	94.9	250.0	94.9	251.0	94.9	252.0	94.9	253.0	94.9	254.0	94.9	255.0	94.9	256.0	94.9
25	0	247.4	98.8	248.4	98.8	249.4	98.8	250.4	98.8	251.4	98.8	252.4	98.8	253.4	98.8	254.4	98.8
26	0	245.7	102.7	246.7	102.7	247.7	102.7	248.7	102.7	249.7	102.7	250.7	102.7	251.7	102.7	252.7	102.7
27	0	244.8	106.6	245.8	106.6	246.8	106.6	247.8	106.6	248.8	106.6	249.8	106.6	250.8	106.6	251.8	106.6
28	0	243.9	110.5	244.9	110.5	245.9	110.5	246.9	110.5	247.9	110.5	248.9	110.5	249.9	110.5	250.9	110.5
29	0	242.1	114.4	243.1	114.4	244.1	114.4	245.1	114.4	246.1	114.4	247.1	114.4	248.1	114.4	249.1	114.4
30	0	240.2	118.3	241.2	118.3	242.2	118.3	243.2	118.3	244.2	118.3	245.2	118.3	246.2	118.3	247.2	118.3
31	0	239.6	122.2	240.6	122.2	241.6	122.2	242.6	122.2	243.6	122.2	244.6	122.2	245.6	122.2	246.6	122.2
32	0	238.2	126.1	239.2	126.1	240.2	126.1	241.2	126.1	242.2	126.1	243.2	126.1	244.2	126.1	245.2	126.1
33	0	236.1	130.0	237.1	130.0	238.1	130.0	239.1	130.0	240.1	130.0	241.1	130.0	242.1	130.0	243.1	130.0
34	0	234.0	133.9	235.0	133.9	236.0	133.9	237.0	133.9	238.0	133.9	239.0	133.9	240.0	133.9	241.0	133.9
35	0	233.7	137.8	234.7	137.8	235.7	137.8	236.7	137.8	237.7	137.8	238.7	137.8	239.7	137.8	240.7	137.8
36	0	231.8	141.7	232.8	141.7	233.8	141.7	234.8	141.7	235.8	141.7	236.8	141.7	237.8	141.7	238.8	141.7
37	0	229.5	145.6	230.5	145.6	231.5	145.6	232.5	145.6	233.5	145.6	234.5	145.6	235.5	145.6	236.5	145.6
38	0	227.3	149.5	228.3	149.5	229.3	149.5	230.3	149.5	231.3	149.5	232.3	149.5	233.3	149.5	234.3	149.5
39	0	227.1	153.4	228.1	153.4	229.1	153.4	230.1	153.4	231.1	153.4	232.1	153.4	233.1	153.4	234.1	153.4
40	0	224.2	157.3	225.2	157.3	226.2	157.3	227.2	157.3	228.2	157.3	229.2	157.3	230.2	157.3	231.2	157.3
41	0	220.3	161.2	221.3	161.2	222.3	161.2	223.3	161.2	224.3	161.2	225.3	161.2	226.3	161.2	227.3	161.2
42	0	219.7	165.1	220.7	165.1	221.7	165.1	222.7	165.1	223.7	165.1	224.7	165.1	225.7	165.1	226.7	165.1
43	0	217.1	169.0	218.1	169.0	219.1	169.0	220.1	169.0	221.1	169.0	222.1	169.0	223.1	169.0	224.1	169.0
44	0	214.4	172.9	215.4	172.9	216.4	172.9	217.4	172.9	218.4	172.9	219.4	172.9	220.4	172.9	221.4	172.9
45	0	212.8	176.8	213.8	176.8	214.8	176.8	215.8	176.8	216.8	176.8	217.8	176.8	218.8	176.8	219.8	176.8
46	0	211.6	180.7	212.6	180.7	213.6	180.7	214.6	180.7	215.6	180.7	216.6	180.7	217.6	180.7	218.6	180.7
47	0	208.8	184.6	209.8	184.6	210.8	184.6	211.8	184.6	212.8	184.6	213.8	184.6	214.8	184.6	215.8	184.6
48	0	205.9	188.5	206.9	188.5	207.9	188.5	208.9	188.5	209.9	188.5	210.9	188.5	211.9	188.5	212.9	188.5
49	0	204.8	192.4	205.8	192.4	206.8	192.4	207.8	192.4	208.8	192.4	209.8	192.4	210.8	192.4	211.8	192.4
50	0	203.0	196.3	204.0	196.3	205.0	196.3	206.0	196.3	207.0	196.3	208.0	196.3	209.0	196.3	210.0	196.3
51	0	200.0	200.2	201.0	200.2	202.0	200.2	203.0	200.2	204.0	200.2	205.0	200.2	206.0	200.2	207.0	200.2
52	0	196.9	204.1	197.9	204.1	198.9	204.1	199.9	204.1	200.9	204.1	201.9	204.1	202.9	204.1	203.9	204.1
53	0	196.4	208.0	197.4	208.0	198.4	208.0	199.4	208.0	200.4	208.0	201.4	208.0	202.4	208.0	203.4	208.0
54	0	193.8	211.9	194.8	211.9	195.8	211.9	196.8	211.9	197.8	211.9	198.8	211.9	199.8	211.9	200.8	211.9
55	0	190.6	215.8	191.6	215.8	192.6	215.8	193.6	215.8	194.6	215.8	195.6	215.8	196.6	215.8	197.6	215.8
56	0	187.4	219.7	188.4	219.7	189.4	219.7	190.4	219.7	191.4	219.7	192.4	219.7	193.4	219.7	194.4	219.7
57	0	184.7	223.6	185.7	223.6	186.7	223.6	187.7	223.6	188.7	223.6	189.7	223.6	190.7	223.6	191.7	223.6
58	0	181.0	227.5	182.0	227.5	183.0	227.5	184.0	227.5	185.0	227.5	186.0	227.5	187.0	227.5	188.0	227.5
59	0	177.3	231.4	178.3	231.4	179.3	231.4	180.3	231.4	181.3	231.4	182.3	231.4	183.3	231.4	184.3	231.4
60	0	173.6	235.3	174.6	235.3	175.6	235.3	176.6	235.3	177.6	235.3	178.6	235.3	179.6	235.3	180.6	235.3
61	0	169.9	239.2	170.9	239.2	171.9	239.2	172.9	239.2	173.9	239.2	174.9	239.2	175.9	239.2	176.9	239.2
62	0	166.2	243.1	167.2	243.1	168.2	243.1	169.2	243.1	170.2	243.1	171.2	243.1	172.2	243.1	173.2	243.1
63	0	162.5	247.0	163.5	247.0	164.5	247.0	165.5	247.0	166.5	247.0	167.5	247.0	168.5	247.0	169.5	247.0
64	0	158.8	250.9	159.8	250.9	160.8	250.9	161.8	250.9	162.8	250.9	163.8	250.9	164.8	250.9	165.8	250.9
65	0	155.1	254.8	156.1	254.8	157.1	254.8	158.1	254.8	159.1	254.8	160.1	254.8	161.1	254.8	162.1	254.8
66	0	151.4	258.7	152.4	258.7	153.4	258.7	154.4	258.7	155.4	258.7	156.4	258.7	157.4	258.		

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Crse.	Degrees	Points			
273		274		275		276		277		278		297		280							
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.						
273.0	00.0	274.0	00.0	275.0	00.0	276.0	00.0	277.0	00.0	278.0	00.0	279.0	00.0	280.0	00.0						
273.0	04.8	274.0	04.8	275.0	04.8	276.0	04.8	277.0	04.8	278.0	04.9	279.0	04.9	280.0	04.9	90	8				
272.8	09.5	273.8	09.6	274.8	09.6	275.8	09.6	276.8	09.7	277.8	09.7	278.8	09.7	279.8	09.8	89					
272.7	13.4	273.7	13.4	274.7	13.5	275.7	13.5	276.7	13.6	277.7	13.6	278.7	13.7	279.7	13.7	88					
272.6	14.3	273.6	14.3	274.6	14.4	275.6	14.4	276.6	14.5	277.6	14.5	278.6	14.6	279.6	14.7	87					
272.3	19.0	273.3	19.1	274.3	19.2	275.3	19.3	276.3	19.3	277.3	19.4	278.3	19.5	279.3	19.5	86					
272.0	23.8	273.0	23.9	274.0	24.0	274.9	24.1	275.9	24.1	276.9	24.2	277.9	24.3	278.9	24.4	85					
271.7	26.8	272.7	26.9	273.7	27.0	274.7	27.1	275.7	27.2	276.7	27.3	277.7	27.3	278.7	27.4	84					
271.5	28.5	272.5	28.6	273.5	28.7	274.5	28.8	275.5	29.0	276.5	29.1	277.5	29.2	278.5	29.3	83					
271.0	33.3	272.0	33.4	273.0	33.5	274.0	33.6	274.9	33.8	275.9	33.9	276.9	34.0	277.9	34.1	82					
270.3	38.0	271.3	38.1	272.3	38.3	273.3	38.4	274.3	38.6	275.3	38.7	276.3	38.8	277.3	39.0	81					
270.0	40.1	271.0	40.2	272.0	40.3	273.0	40.5	274.0	40.6	275.0	40.8	276.0	40.9	277.0	41.0	80					
269.6	42.7	270.6	42.9	271.6	43.0	272.6	43.2	273.6	43.3	274.6	43.5	275.6	43.6	276.6	43.8	79					
268.9	47.4	269.8	47.6	270.8	47.8	271.8	47.9	272.8	48.1	273.8	48.3	274.8	48.4	275.7	48.6	78					
268.0	52.1	269.1	52.3	270.9	52.5	270.9	52.7	271.9	52.9	272.9	53.0	273.9	53.2	274.9	53.4	77					
267.8	53.3	268.7	53.5	269.7	53.6	270.7	53.8	271.7	54.0	272.7	54.2	273.6	54.4	274.6	54.6	76					
267.0	56.8	268.0	57.0	269.0	57.2	270.0	57.4	270.9	57.6	271.9	57.8	272.9	58.0	273.9	58.2	75					
266.0	61.4	267.0	61.6	268.0	61.9	268.9	62.1	269.9	62.3	270.9	62.5	271.8	62.8	272.8	63.0	74					
264.9	66.0	265.9	66.3	266.8	66.5	267.8	66.8	268.8	67.0	269.7	67.3	270.7	67.5	271.7	67.7	73					
264.8	66.3	265.8	66.6	266.8	66.8	267.7	67.1	268.7	67.3	269.7	67.5	270.6	67.8	271.6	68.0	72					
263.7	70.7	264.7	70.9	265.6	71.2	266.6	71.4	267.6	71.7	268.5	72.0	269.5	72.2	270.5	72.5	71					
262.4	75.2	263.4	75.5	264.3	75.8	265.3	76.1	266.3	76.4	267.2	76.6	268.2	76.9	269.2	77.2	70					
261.2	79.2	262.2	79.5	263.2	79.8	264.1	80.1	265.1	80.4	266.0	80.7	267.0	81.0	268.0	81.3	69					
261.1	79.8	262.0	80.1	263.0	80.4	263.9	80.7	264.9	81.0	265.9	81.3	266.8	81.6	267.8	81.9	68					
259.6	84.4	260.6	84.7	261.5	85.0	262.5	85.3	263.4	85.6	264.4	85.9	265.3	86.2	266.3	86.5	67					
258.1	88.9	259.1	89.2	260.0	89.5	261.0	89.9	261.9	90.2	262.9	90.5	263.8	90.8	264.7	91.2	66					
257.0	92.0	258.0	92.3	258.9	92.6	259.9	93.0	260.8	93.3	261.7	93.7	262.7	94.0	263.6	94.3	65					
256.5	93.4	257.5	93.7	258.4	94.1	259.4	94.4	260.3	94.7	261.2	95.1	262.2	95.4	263.1	95.8	64					
254.9	97.8	255.8	98.2	256.7	98.6	257.7	98.9	258.6	99.3	259.5	99.6	260.5	100.0	261.4	100.3	63					
253.1	102.3	254.0	102.6	255.0	103.0	255.9	103.4	256.8	103.8	257.8	104.1	258.7	104.5	259.6	104.9	62					
252.2	104.5	253.1	104.9	254.1	105.2	255.0	105.6	255.9	106.0	256.8	106.4	257.8	106.8	258.7	107.2	61					
251.3	106.7	252.2	107.1	253.1	107.5	254.1	107.8	255.0	108.2	255.9	108.6	256.8	109.0	257.7	109.4	60					
249.4	111.0	250.3	111.4	251.2	111.9	252.1	112.3	253.1	112.7	254.0	113.1	254.9	113.5	255.8	113.9	59					
247.4	115.4	248.3	115.8	249.2	116.2	250.1	116.6	251.0	117.1	252.0	117.5	252.9	117.9	253.8	118.3	58					
246.8	116.7	247.7	117.2	248.6	117.6	249.5	118.0	250.4	118.4	251.3	118.9	252.2	119.3	253.1	119.7	57					
245.4	119.7	246.3	120.1	247.2	120.6	248.1	121.0	249.0	121.4	249.9	121.9	250.8	122.3	251.7	122.7	56					
244.2	123.9	245.1	124.4	246.0	124.8	246.9	125.3	247.8	125.8	248.7	126.2	249.6	126.7	250.5	127.1	55					
241.0	128.2	241.9	128.6	242.8	129.1	243.7	129.6	244.6	130.0	245.5	130.5	246.4	131.0	247.3	131.5	54					
240.8	128.7	241.6	129.2	242.5	129.6	243.4	130.1	244.3	130.6	245.2	131.0	246.1	131.5	247.0	132.0	53					
238.8	132.4	239.6	132.8	240.5	133.3	241.4	133.8	242.3	134.3	243.2	134.8	244.1	135.3	245.0	135.7	52					
236.4	136.5	237.3	137.0	238.2	137.5	239.1	138.0	240.0	138.5	240.9	139.0	241.8	139.5	242.7	140.0	51					
234.2	140.4	235.0	140.9	235.9	141.4	236.8	141.9	237.6	142.4	238.4	142.9	239.3	143.4	240.2	143.9	50					
234.0	140.6	234.9	141.1	235.7	141.6	236.6	142.2	237.4	142.7	238.3	143.2	239.1	143.7	240.0	144.2	49					
231.5	144.7	232.4	145.2	233.2	145.7	234.1	146.3	234.9	146.8	235.8	147.3	236.6	147.8	237.5	148.4	48					
229.0	148.7	229.8	149.2	230.6	149.8	231.5	150.3	232.3	150.9	233.2	151.4	234.0	152.0	234.8	152.5	47					
227.0	151.7	227.8	152.2	228.7	152.8	229.5	153.3	230.3	153.9	231.1	154.4	232.0	155.0	232.8	155.5	46					
226.3	152.7	227.2	153.2	228.0	153.8	228.8	154.3	229.6	154.9	230.5	155.5	231.3	156.0	232.1	156.6	45					
223.6	156.6	224.4	157.2	225.3	157.7	226.1	158.3	226.9	158.9	227.7	159.5	228.5	160.0	229.4	160.6	44					
220.9	160.5	221.7	161.1	222.5	161.6	223.3	162.2	224.1	162.8	224.9	163.4	225.7	164.0	226.5	164.6	43					
219.3	162.6	220.1	163.2	220.9	163.8	221.7	164.4	222.5	165.0	223.3	165.6	224.1	166.2	224.9	166.8	42					
218.0	164.3	218.8	164.9	219.6	165.5	220.4	166.1	221.2	166.7	222.0	167.3	222.8	167.9	223.6	168.5	41					
215.1	168.1	215.9	168.7	216.7	169.3	217.5	169.9	218.3	170.5	219.1	171.2	219.9	171.8	220.6	172.4	40					
212.2	171.8	212.9	172.4	213.7	173.1	214.5	173.7	215.3	174.3	216.0	175.0	216.8	175.6	217.6	176.2	39					
211.0	173.2	211.8	173.8	212.6	174.5	213.4	175.1	214.1	175.7	214.9	176.4	215.7	177.0	216.4	177.6	38					
209.1	175.5	209.9	176.1	210.7	176.8	211.4	177.4	212.2	178.1	213.0	178.7	213.7	179.3	214.5	180.0	37					
206.0	179.1	206.8	179.8	207.5	180.4	208.3	181.1	209.1	181.7	209.8	182.4	210.6	183.0	211.3	183.7	36					
202.9	182.7	203.6	183.3	204.4	184.0	205.1	184.7	205.9	185.3	206.6	186.0	207.3	186.7	208.1	187.4	35					
202.3	183.3	203.0	184.0	203.8	184.7	204.5	185.4	205.2	186.0	206.0	186.7	206.7	187.4	207.5	188.0	34					
199.7	186.2	200.4	186.9	201.1	187.5	201.9	188.2	202.6	188.9	203.3	189.6	204.0	190.3	204.8	191.0	33					
198.9	189.6	199.7	190.3	197.8	191.0	198.5	191.7	199.3	192.4	200.0	193.1	200.7	193.8	201.4	194.5	32					
193.0	193.0	193.7	193.7	194.5	194.5	195.2	195.2	195.9	195.9	196.6	196.6	197.3	197.3	198.0	198.0	31					
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	DISTANCE.					
273	274	275	276	277	278	279	280	DISTANCE.			DISTANCE.			DISTANCE.			DISTANCE.				
273	274	275	276	277	278	279	280	DISTANCE.			DISTANCE.			DISTANCE.			DISTANCE.				

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

Crse.	Points Degrees	DISTANCE.																On	
		281		282		283		284		285		286		287		288			
		Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure	Diff. Lat.	Departure		
0	0	281.0	00.0	282.0	00.0	283.0	00.0	284.0	00.0	285.0	00.0	286.0	00.0	287.0	00.0	288.0	00.0	000	
1	1	281.0	04.9	282.0	04.9	283.0	04.9	284.0	05.0	285.0	05.0	286.0	05.0	287.0	05.0	288.0	05.0	001	
2	2	280.8	09.8	281.8	09.8	282.8	09.8	283.8	09.9	284.8	09.9	285.8	10.0	286.8	10.0	287.8	10.1	002	
3	3	280.7	13.8	281.7	13.8	282.7	13.9	283.7	13.9	284.7	14.0	285.7	14.0	286.7	14.1	287.7	14.1	003	
4	4	280.6	14.7	281.6	14.8	282.6	14.8	283.6	14.9	284.6	14.9	285.6	15.0	286.6	15.0	287.6	15.1	004	
5	5	280.3	19.6	281.3	19.7	282.3	19.7	283.3	19.8	284.3	19.9	285.3	20.0	286.3	20.0	287.3	20.1	005	
6	6	279.9	24.5	280.9	24.6	281.9	24.7	282.9	24.8	283.9	24.8	284.9	24.9	285.9	25.0	286.9	25.1	006	
7	7	279.6	27.5	280.6	27.6	281.6	27.7	282.6	27.8	283.6	27.9	284.6	28.0	285.6	28.1	286.6	28.2	007	
8	8	279.5	29.4	280.5	29.5	281.5	29.6	282.5	29.7	283.5	29.8	284.5	29.9	285.5	30.0	286.5	30.1	008	
9	9	278.9	34.2	279.9	34.4	280.9	34.5	281.9	34.6	282.9	34.7	283.9	34.9	284.9	35.0	285.9	35.1	009	
10	10	278.3	39.1	279.3	39.2	280.3	39.4	281.3	39.5	282.3	39.7	283.3	39.8	284.3	39.9	285.3	40.1	010	
11	11	278.0	41.2	278.9	41.4	279.9	41.5	280.9	41.7	281.9	41.8	282.9	42.0	283.9	42.1	284.9	42.3	011	
12	12	277.5	44.0	278.5	44.1	279.5	44.3	280.5	44.4	281.5	44.6	282.5	44.7	283.5	44.9	284.5	45.1	012	
13	13	276.7	48.8	277.7	49.0	278.7	49.1	279.7	49.3	280.7	49.5	281.7	49.7	282.7	49.8	283.6	50.0	013	
14	14	275.8	53.6	276.8	53.8	277.8	54.0	278.8	54.2	279.8	54.4	280.7	54.6	281.7	54.8	282.7	55.0	014	
15	15	275.6	54.8	276.6	55.0	277.6	55.2	278.5	55.4	279.5	55.6	280.5	55.8	281.5	56.0	282.5	56.2	015	
16	16	274.9	58.4	275.8	58.6	276.8	58.8	277.8	59.0	278.8	59.3	279.8	59.5	280.7	59.7	281.7	59.9	016	
17	17	274.0	63.2	274.8	63.4	275.7	63.7	276.7	63.9	277.7	64.1	278.7	64.3	279.6	64.6	280.6	64.8	017	
18	18	272.7	68.0	273.6	68.2	274.6	68.5	275.6	68.7	276.5	68.9	277.5	69.2	278.5	69.4	279.4	69.7	018	
19	19	272.6	68.3	273.5	68.5	274.5	68.8	275.5	69.0	276.5	69.2	277.4	69.5	278.4	69.7	279.4	70.0	019	
20	20	271.4	72.7	272.4	73.0	273.4	73.2	274.3	73.5	275.3	73.8	276.3	74.0	277.2	74.3	278.2	74.5	020	
21	21	270.1	77.5	271.1	77.7	272.0	78.0	273.0	78.3	274.0	78.6	274.9	78.8	275.9	79.1	276.8	79.4	021	
22	22	268.9	81.6	269.9	81.9	270.8	82.2	271.8	82.4	272.7	82.7	273.7	83.0	274.6	83.3	275.6	83.6	022	
23	23	268.7	82.2	269.7	82.4	270.6	82.7	271.6	83.0	272.5	83.3	273.5	83.6	274.5	83.9	275.4	84.2	023	
24	24	267.2	86.8	268.2	87.1	269.1	87.5	270.1	87.8	271.1	88.1	272.0	88.4	273.0	88.7	273.9	89.0	024	
25	25	265.7	91.5	266.6	91.8	267.6	92.1	268.5	92.5	269.5	92.8	270.4	93.1	271.4	93.4	272.3	93.8	025	
26	26	264.6	94.7	265.5	95.0	266.5	95.3	267.4	95.7	268.3	96.0	269.3	96.4	270.2	96.7	271.2	97.0	026	
27	27	264.1	96.1	265.0	96.4	266.9	96.8	267.9	97.1	268.8	97.5	269.8	97.8	270.7	98.2	271.0	98.5	027	
28	28	262.3	100.7	263.3	101.1	264.2	101.4	265.1	101.8	266.1	102.1	267.0	102.5	267.9	102.9	268.9	103.2	028	
29	29	260.5	105.3	261.5	105.6	262.4	106.0	263.3	106.4	264.2	106.8	265.2	107.1	266.1	107.5	267.0	107.9	029	
30	30	259.6	107.5	260.5	107.9	261.5	108.3	262.4	108.7	263.3	109.1	264.2	109.4	265.2	109.8	266.1	110.2	030	
31	31	258.7	109.8	259.6	110.2	260.5	110.6	261.4	111.0	262.3	111.4	263.3	111.7	264.2	112.1	265.1	112.5	031	
32	32	256.7	114.3	257.6	114.7	258.5	115.1	259.4	115.5	260.4	115.9	261.3	116.3	262.2	116.7	263.1	117.1	032	
33	33	254.7	118.8	255.6	119.2	256.5	119.6	257.4	120.0	258.3	120.4	259.2	120.9	260.1	121.3	261.0	121.7	033	
34	34	254.0	120.1	254.9	120.6	255.8	121.0	256.7	121.4	257.6	121.9	258.5	122.3	259.4	122.7	260.3	123.1	034	
35	35	252.6	123.2	253.5	123.6	254.4	124.1	255.3	124.5	256.2	124.9	257.1	125.4	258.0	125.8	258.9	126.3	035	
36	36	252.4	127.6	253.3	128.0	254.2	128.5	255.0	128.9	255.9	129.4	254.8	129.8	255.7	130.3	256.6	130.7	036	
37	37	248.1	131.9	249.0	132.4	249.9	132.9	250.8	133.3	251.6	133.8	252.5	134.3	253.4	134.7	254.3	135.2	037	
38	38	247.8	132.5	248.7	132.9	249.6	133.4	250.5	133.9	251.3	134.3	252.2	134.8	253.1	135.3	254.0	135.8	038	
39	39	245.8	136.2	246.6	136.7	247.5	137.2	248.4	137.7	249.3	138.2	250.1	138.7	251.0	139.1	251.9	139.6	039	
40	40	243.4	140.5	244.2	141.0	245.1	141.5	246.0	142.0	246.8	142.5	247.7	143.0	248.5	143.5	249.4	144.0	040	
41	41	241.0	144.5	241.9	145.0	242.7	145.5	243.6	146.0	244.5	146.5	245.3	147.0	246.2	147.5	247.0	148.1	041	
42	42	240.9	144.7	241.7	145.2	242.6	145.8	243.4	146.3	244.3	146.8	245.1	147.3	246.0	147.8	246.9	148.3	042	
43	43	238.3	148.9	239.1	149.4	240.0	150.0	240.8	150.5	241.7	151.0	242.5	151.6	243.4	152.1	244.2	152.6	043	
44	44	235.7	153.0	236.5	153.6	237.3	154.1	238.2	154.7	239.0	155.2	239.9	155.8	240.7	156.3	241.5	156.9	044	
45	45	233.6	156.1	234.5	156.7	235.3	157.2	236.1	157.8	237.0	158.3	237.8	158.9	238.6	159.4	239.5	160.0	045	
46	46	233.0	157.1	233.8	157.7	234.6	158.3	235.4	158.8	236.3	159.4	237.1	159.9	237.9	160.5	238.8	161.0	046	
47	47	230.2	161.2	231.0	161.7	231.8	162.3	232.6	162.9	233.5	163.5	234.3	164.0	235.1	164.6	235.9	165.2	047	
48	48	227.3	165.2	228.1	165.8	229.0	166.3	229.8	166.9	230.6	167.5	231.4	168.1	232.2	168.7	233.0	169.2	048	
49	49	225.7	167.4	226.5	168.0	227.3	168.6	228.1	169.2	228.9	169.8	229.7	170.4	230.5	171.0	231.3	171.6	049	
50	50	224.4	169.1	225.2	169.7	226.0	170.3	226.8	170.9	227.6	171.5	228.4	172.1	229.2	172.7	230.0	173.3	050	
51	51	221.4	173.0	222.2	173.6	223.0	174.2	223.8	174.8	224.6	175.5	225.4	176.1	226.2	176.7	226.9	177.3	051	
52	52	218.4	176.8	219.2	177.5	219.9	178.1	220.7	178.7	221.5	179.4	222.3	180.0	223.0	180.6	223.8	181.2	052	
53	53	217.2	178.3	218.0	178.9	218.8	179.5	219.5	180.2	220.3	180.8	221.1	181.4	221.9	182.1	222.6	182.7	053	
54	54	215.3	180.6	216.0	181.3	216.8	181.9	217.6	182.6	218.3	183.2	219.1	183.8	219.9	184.5	220.6	185.1	054	
55	55	212.1	184.4	212.8	185.0	213.6	185.7	214.3	186.3	215.1	187.0	215.8	187.6	216.6	188.3	217.4	188.9	055	
56	56	208.8	188.0	209.6	188.5	210.3	189.4	211.1	190.0	211.8	190.7	212.5	191.4	213.3	192.0	214.0	192.7	056	
57	57	208.2	188.7	208.9	189.4	209.7	190.1	210.4	190.7	211.2	191.4	211.9	192.1	212.7	192.7	213.4	193.4	057	
58	58	205.5	191.6	206.2	192.3	207.0	193.0	207.7	193.7	208.4	194.4	209.2	195.1	209.9	195.7	210.6	196.4	058	
59	59	202.1	195.2	202.9	195.9	203.6	196.6	204.3	197.3	205.0	198.0	205.7	198.7	206.5	199.4	207.3	200.2	059	
60	60	198.7	198.7	199.4	199.4	200.1	200.1	200.8	200.8	201.5	201.5	202.2	202.2	202.9	202.9	203.6	203.6	060	
Crse.	Points Degrees	DISTANCE.																On	
		281		282		283		284		285		286		287		288			
		Departure	Diff. Lat.	Departure	Diff. Lat.	Departure													

TABLE XLII.

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A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE.

DISTANCE.																Crs.
289		290		291		292		293		294		295		296		
Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Degrees Points
289.0	00.0	290.0	00.0	291.0	00.0	292.0	00.0	293.0	00.0	294.0	00.0	295.0	00.0	296.0	00.0	908
289.0	05.0	290.0	05.1	291.0	05.1	292.0	05.1	293.0	05.1	294.0	05.1	295.0	05.1	296.0	05.2	89
288.8	10.1	289.8	10.1	290.8	10.2	291.8	10.2	292.8	10.2	293.8	10.3	294.8	10.3	295.8	10.3	88
288.7	14.2	289.7	14.2	290.7	14.3	291.7	14.3	292.7	14.4	293.6	14.4	294.6	14.5	295.6	14.5	74
288.6	15.1	289.6	15.2	290.6	15.2	291.6	15.3	292.6	15.3	293.6	15.4	294.6	15.4	295.6	15.5	87
288.3	20.2	289.3	20.2	290.3	20.3	291.3	20.4	292.3	20.4	293.3	20.5	294.3	20.6	295.3	20.6	86
287.9	25.2	288.9	25.3	289.9	25.4	290.9	25.4	291.9	25.5	292.9	25.6	293.9	25.7	294.9	25.8	85
287.6	28.3	288.6	28.4	289.6	28.5	290.6	28.6	291.6	28.7	292.6	28.8	293.6	28.9	294.6	29.0	74
287.4	30.2	288.4	30.3	289.4	30.4	290.4	30.5	291.4	30.6	292.4	30.7	293.4	30.8	294.4	30.9	84
286.8	35.2	287.8	35.3	288.8	35.5	289.8	35.6	290.8	35.7	291.8	35.8	292.8	36.0	293.8	36.1	83
286.2	40.2	287.2	40.4	288.2	40.5	289.2	40.6	290.2	40.8	291.2	40.9	292.2	41.1	293.2	41.2	82
285.9	42.4	286.9	42.5	287.8	42.7	288.8	42.8	289.8	43.0	290.8	43.1	291.8	43.3	292.8	43.4	74
285.4	45.2	286.4	45.4	287.4	45.5	288.4	45.7	289.4	45.8	290.4	46.0	291.4	46.1	292.4	46.3	81
284.6	50.2	285.6	50.4	286.6	50.5	287.6	50.7	288.6	50.9	289.6	51.1	290.6	51.2	291.6	51.4	80
283.7	55.1	284.7	55.3	285.7	55.5	286.6	55.7	287.6	55.9	288.6	56.1	289.6	56.3	290.6	56.5	79
283.4	56.4	284.4	56.6	285.4	56.8	286.4	57.0	287.4	57.2	288.3	57.4	289.3	57.6	290.3	57.7	7
282.7	60.1	283.7	60.3	284.6	60.5	285.6	60.7	286.6	60.9	287.6	61.1	288.6	61.3	289.6	61.5	78
281.6	65.0	282.6	65.2	283.5	65.5	284.5	65.7	285.5	65.9	286.5	66.1	287.4	66.4	288.4	66.6	77
280.4	69.9	281.4	70.2	282.4	70.4	283.3	70.6	284.3	70.9	285.3	71.1	286.2	71.4	287.2	71.6	76
280.3	70.2	281.3	70.5	282.3	70.7	283.2	71.0	284.2	71.2	285.2	71.4	286.2	71.7	287.1	71.9	64
279.2	74.8	280.0	75.1	281.1	75.3	282.1	75.6	283.0	75.8	284.0	76.1	284.9	76.4	285.9	76.6	75
277.8	79.7	278.8	79.9	279.7	80.2	280.7	80.5	281.6	80.8	282.6	81.0	283.6	81.3	284.5	81.6	74
276.6	83.9	277.5	84.2	278.5	84.5	279.4	84.8	280.4	85.1	281.3	85.3	282.3	85.6	283.3	85.9	64
276.4	84.5	277.3	84.8	278.3	85.1	279.2	85.4	280.2	85.7	281.2	86.0	282.1	86.2	283.1	86.5	73
274.9	89.3	275.8	89.6	276.8	89.9	277.7	90.2	278.7	90.5	279.6	90.9	280.6	91.2	281.5	91.5	72
273.3	94.1	274.2	94.4	275.1	94.7	276.1	95.1	277.0	95.4	278.0	95.7	278.9	96.0	279.9	96.4	71
272.1	97.4	273.0	97.7	274.0	98.0	274.9	98.4	275.9	98.7	276.8	99.0	277.8	99.4	278.7	99.7	64
271.6	98.8	272.5	99.2	273.5	99.5	274.4	99.9	275.3	100.2	276.3	100.6	277.2	100.9	278.1	101.2	70
269.8	103.6	270.7	103.9	271.7	104.3	272.6	104.6	273.5	105.0	274.5	105.4	275.4	105.7	276.3	106.1	69
268.0	108.3	268.9	108.6	269.8	109.0	270.7	109.4	271.7	109.8	272.6	110.1	273.5	110.5	274.4	110.9	68
267.0	110.6	267.9	111.0	268.8	111.4	269.8	111.7	270.7	112.1	271.6	112.5	272.5	112.9	273.5	113.3	6
266.0	112.9	266.9	113.3	267.9	113.7	268.8	114.1	269.7	114.5	270.6	114.9	271.5	115.3	272.5	115.7	67
264.0	117.6	264.9	118.0	265.8	118.4	266.8	118.8	267.7	119.2	268.6	119.6	269.5	120.0	270.4	120.4	66
261.9	122.1	262.8	122.6	263.7	123.0	264.6	123.4	265.5	123.8	266.5	124.2	267.4	124.7	268.3	125.1	65
261.3	123.6	262.2	124.0	263.1	124.4	264.0	124.8	264.9	125.3	265.8	125.7	266.7	126.1	267.6	126.6	54
259.8	126.7	260.7	127.1	261.5	127.6	262.4	128.0	263.3	128.4	264.2	128.9	265.1	129.3	266.0	129.8	64
257.5	131.2	258.4	131.7	259.3	132.1	260.2	132.6	261.1	133.0	262.0	133.5	262.8	133.9	263.7	134.4	63
255.2	135.7	256.1	136.1	257.0	136.6	257.8	137.1	258.7	137.6	259.6	138.0	260.5	138.5	261.4	139.0	62
254.9	136.2	255.8	136.7	256.6	137.2	257.5	137.6	258.4	138.1	259.3	138.6	260.2	139.1	261.0	139.5	54
252.8	140.1	253.6	140.6	254.5	141.1	255.4	141.6	256.3	142.0	257.1	142.5	258.0	143.0	258.9	143.5	61
250.3	144.5	251.1	145.0	252.0	145.5	252.9	146.0	253.7	146.5	254.6	147.0	255.5	147.5	256.3	148.0	60
247.9	148.6	248.7	149.1	249.6	149.6	250.5	150.1	251.3	150.6	252.2	151.1	253.0	151.7	253.9	152.2	54
247.7	148.8	248.6	149.4	249.4	149.9	250.3	150.4	251.2	150.9	252.0	151.4	252.9	151.9	253.7	152.5	59
245.1	153.1	245.9	153.7	246.8	154.2	247.6	154.7	248.5	155.3	249.3	155.8	250.2	156.3	251.0	156.9	58
242.4	157.4	243.2	157.9	244.1	158.5	244.9	159.0	245.7	159.6	246.6	160.1	247.4	160.7	248.2	161.2	57
240.3	160.5	241.1	161.1	242.0	161.7	242.8	162.2	243.6	162.8	244.5	163.3	245.3	163.9	246.1	164.4	5
239.6	161.6	240.4	162.2	241.2	162.7	242.1	163.3	242.9	163.8	243.7	164.4	244.6	165.0	245.4	165.5	56
236.7	165.8	237.6	166.3	238.4	166.9	239.2	167.5	240.0	168.1	240.8	168.6	241.6	169.2	242.5	169.8	55
233.8	169.9	234.6	170.5	235.4	171.0	236.2	171.6	237.0	172.2	237.9	172.8	238.7	173.4	239.5	174.0	54
233.1	172.2	233.9	172.8	234.7	173.3	235.5	173.9	236.3	174.5	237.1	175.1	237.9	175.7	238.7	176.3	44
230.8	173.9	231.6	174.5	232.4	175.1	233.2	175.7	234.0	176.3	234.8	176.9	235.6	177.5	236.4	178.1	53
227.7	177.9	228.5	178.5	229.3	179.2	230.1	179.8	230.9	180.4	231.7	181.0	232.5	181.6	233.3	182.2	52
224.6	181.9	225.4	182.5	226.1	183.1	226.9	183.8	227.7	184.4	228.5	185.0	229.3	185.6	230.0	186.3	51
223.4	183.3	224.2	184.0	224.9	184.6	225.7	185.2	226.5	185.9	227.3	186.5	228.0	187.1	228.8	187.8	44
221.4	185.8	222.2	186.4	222.9	187.1	223.7	187.7	224.5	188.3	225.2	189.0	226.0	189.6	226.7	190.3	50
218.1	189.6	218.9	190.3	219.6	190.9	220.4	191.6	221.1	192.2	221.9	192.9	222.6	193.5	223.4	194.2	49
214.8	193.4	215.5	194.0	216.3	194.7	217.0	195.4	217.7	196.1	218.5	196.7	219.2	197.4	220.0	198.1	48
214.1	194.1	214.9	194.8	215.6	195.4	216.4	196.1	217.1	196.8	217.8	197.4	218.6	198.1	219.3	198.8	44
211.4	197.1	212.1	197.8	212.8	198.5	213.6	199.1	214.3	199.8	215.0	200.5	215.7	201.2	216.5	201.9	47
207.9	200.8	208.6	201.5	209.3	202.1	210.0	202.8	210.8	203.5	211.5	204.2	212.2	204.9	212.9	205.6	46
204.4	204.4	205.1	205.1	205.8	205.8	206.5	206.5	207.2	207.2	207.9	207.9	208.6	208.6	209.3	209.3	454
Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Degrees Points
289		290		291		292		293		294		295		296		Crs.

A GENERAL TRAVERSE TABLE; OR DIFFERENCE OF LATITUDE AND DEPARTURE

Course.		DISTANCE.															
Points.	Degrees.	297		298		299		300		301		302		303		30	
		Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.	Diff. Lat.	Departure.
0	0	297.0	00.0	298.0	00.0	299.0	00.0	300.0	00.0	301.0	00.0	302.0	00.0	303.0	00.0	304.0	00.0
1	0	297.0	05.2	298.0	05.2	299.0	05.2	300.0	05.2	301.0	05.3	302.0	05.3	303.0	05.3	304.0	05.3
2	0	296.8	10.4	297.8	10.4	298.8	10.4	299.8	10.5	300.8	10.5	301.8	10.5	302.8	10.6	303.8	10.6
3	0	296.6	14.6	297.6	14.6	298.6	14.7	299.6	14.7	300.6	14.8	301.6	14.8	302.6	14.9	303.6	14.9
4	0	296.3	18.8	297.3	18.8	298.3	18.9	299.3	18.9	300.3	19.0	301.3	19.0	302.3	19.1	303.3	19.1
5	0	295.9	22.9	296.9	22.9	297.9	23.0	298.9	23.0	299.9	23.1	300.9	23.1	301.9	23.2	302.9	23.2
6	0	295.6	27.1	296.6	27.1	297.6	27.2	298.6	27.2	299.6	27.3	300.6	27.3	301.6	27.4	302.6	27.4
7	0	295.4	31.0	296.4	31.1	297.4	31.1	298.4	31.2	299.4	31.2	300.4	31.3	301.4	31.3	302.4	31.4
8	0	294.8	35.2	295.8	35.2	296.8	35.3	297.8	35.3	298.8	35.4	299.8	35.4	300.8	35.5	301.8	35.5
9	0	294.1	39.3	295.1	39.3	296.1	39.4	297.1	39.4	298.1	39.5	299.1	39.5	300.1	39.6	301.1	39.6
10	0	293.8	43.6	294.8	43.6	295.8	43.7	296.8	43.7	297.8	43.8	298.8	43.8	299.8	43.9	300.8	43.9
11	0	293.3	47.8	294.3	47.8	295.3	47.9	296.3	47.9	297.3	48.0	298.3	48.0	299.3	48.1	300.3	48.1
12	0	292.5	51.9	293.5	51.9	294.5	52.0	295.5	52.0	296.5	52.1	297.5	52.1	298.5	52.2	299.5	52.2
13	0	291.5	56.0	292.5	56.0	293.5	56.1	294.5	56.1	295.5	56.2	296.5	56.2	297.5	56.3	298.5	56.3
14	0	291.3	59.9	292.3	59.9	293.3	60.0	294.3	60.0	295.3	60.1	296.3	60.1	297.3	60.2	298.3	60.2
15	0	290.5	63.9	291.5	63.9	292.5	64.0	293.5	64.0	294.5	64.1	295.5	64.1	296.5	64.2	297.5	64.2
16	0	289.4	67.8	290.4	67.8	291.4	67.9	292.4	67.9	293.4	68.0	294.4	68.0	295.4	68.1	296.4	68.1
17	0	288.2	71.7	289.2	71.7	290.2	71.8	291.2	71.8	292.2	71.9	293.2	71.9	294.2	72.0	295.2	72.0
18	0	288.1	75.6	289.1	75.6	290.1	75.7	291.1	75.7	292.1	75.8	293.1	75.8	294.1	75.9	295.1	75.9
19	0	288.1	79.5	289.1	79.5	290.1	79.6	291.1	79.6	292.1	79.7	293.1	79.7	294.1	79.8	295.1	79.8
20	0	288.1	83.4	289.1	83.4	290.1	83.5	291.1	83.5	292.1	83.6	293.1	83.6	294.1	83.7	295.1	83.7
21	0	288.1	87.3	289.1	87.3	290.1	87.4	291.1	87.4	292.1	87.5	293.1	87.5	294.1	87.6	295.1	87.6
22	0	288.1	91.2	289.1	91.2	290.1	91.3	291.1	91.3	292.1	91.4	293.1	91.4	294.1	91.5	295.1	91.5
23	0	288.1	95.1	289.1	95.1	290.1	95.2	291.1	95.2	292.1	95.3	293.1	95.3	294.1	95.4	295.1	95.4
24	0	288.1	99.0	289.1	99.0	290.1	99.1	291.1	99.1	292.1	99.2	293.1	99.2	294.1	99.3	295.1	99.3
25	0	288.1	102.9	289.1	102.9	290.1	103.0	291.1	103.0	292.1	103.1	293.1	103.1	294.1	103.2	295.1	103.2
26	0	288.1	106.8	289.1	106.8	290.1	106.9	291.1	106.9	292.1	107.0	293.1	107.0	294.1	107.1	295.1	107.1
27	0	288.1	110.7	289.1	110.7	290.1	110.8	291.1	110.8	292.1	110.9	293.1	110.9	294.1	111.0	295.1	111.0
28	0	288.1	114.6	289.1	114.6	290.1	114.7	291.1	114.7	292.1	114.8	293.1	114.8	294.1	114.9	295.1	114.9
29	0	288.1	118.5	289.1	118.5	290.1	118.6	291.1	118.6	292.1	118.7	293.1	118.7	294.1	118.8	295.1	118.8
30	0	288.1	122.4	289.1	122.4	290.1	122.5	291.1	122.5	292.1	122.6	293.1	122.6	294.1	122.7	295.1	122.7
31	0	288.1	126.3	289.1	126.3	290.1	126.4	291.1	126.4	292.1	126.5	293.1	126.5	294.1	126.6	295.1	126.6
32	0	288.1	130.2	289.1	130.2	290.1	130.3	291.1	130.3	292.1	130.4	293.1	130.4	294.1	130.5	295.1	130.5
33	0	288.1	134.1	289.1	134.1	290.1	134.2	291.1	134.2	292.1	134.3	293.1	134.3	294.1	134.4	295.1	134.4
34	0	288.1	138.0	289.1	138.0	290.1	138.1	291.1	138.1	292.1	138.2	293.1	138.2	294.1	138.3	295.1	138.3
35	0	288.1	141.9	289.1	141.9	290.1	142.0	291.1	142.0	292.1	142.1	293.1	142.1	294.1	142.2	295.1	142.2
36	0	288.1	145.8	289.1	145.8	290.1	145.9	291.1	145.9	292.1	146.0	293.1	146.0	294.1	146.1	295.1	146.1
37	0	288.1	149.7	289.1	149.7	290.1	149.8	291.1	149.8	292.1	149.9	293.1	149.9	294.1	150.0	295.1	150.0
38	0	288.1	153.6	289.1	153.6	290.1	153.7	291.1	153.7	292.1	153.8	293.1	153.8	294.1	153.9	295.1	153.9
39	0	288.1	157.5	289.1	157.5	290.1	157.6	291.1	157.6	292.1	157.7	293.1	157.7	294.1	157.8	295.1	157.8
40	0	288.1	161.4	289.1	161.4	290.1	161.5	291.1	161.5	292.1	161.6	293.1	161.6	294.1	161.7	295.1	161.7
41	0	288.1	165.3	289.1	165.3	290.1	165.4	291.1	165.4	292.1	165.5	293.1	165.5	294.1	165.6	295.1	165.6
42	0	288.1	169.2	289.1	169.2	290.1	169.3	291.1	169.3	292.1	169.4	293.1	169.4	294.1	169.5	295.1	169.5
43	0	288.1	173.1	289.1	173.1	290.1	173.2	291.1	173.2	292.1	173.3	293.1	173.3	294.1	173.4	295.1	173.4
44	0	288.1	177.0	289.1	177.0	290.1	177.1	291.1	177.1	292.1	177.2	293.1	177.2	294.1	177.3	295.1	177.3
45	0	288.1	180.9	289.1	180.9	290.1	181.0	291.1	181.0	292.1	181.1	293.1	181.1	294.1	181.2	295.1	181.2
46	0	288.1	184.8	289.1	184.8	290.1	184.9	291.1	184.9	292.1	185.0	293.1	185.0	294.1	185.1	295.1	185.1
47	0	288.1	188.7	289.1	188.7	290.1	188.8	291.1	188.8	292.1	188.9	293.1	188.9	294.1	189.0	295.1	189.0
48	0	288.1	192.6	289.1	192.6	290.1	192.7	291.1	192.7	292.1	192.8	293.1	192.8	294.1	192.9	295.1	192.9
49	0	288.1	196.5	289.1	196.5	290.1	196.6	291.1	196.6	292.1	196.7	293.1	196.7	294.1	196.8	295.1	196.8
50	0	288.1	200.4	289.1	200.4	290.1	200.5	291.1	200.5	292.1	200.6	293.1	200.6	294.1	200.7	295.1	200.7
51	0	288.1	204.3	289.1	204.3	290.1	204.4	291.1	204.4	292.1	204.5	293.1	204.5	294.1	204.6	295.1	204.6
52	0	288.1	208.2	289.1	208.2	290.1	208.3	291.1	208.3	292.1	208.4	293.1	208.4	294.1	208.5	295.1	208.5
53	0	288.1	212.1	289.1	212.1	290.1	212.2	291.1	212.2	292.1	212.3	293.1	212.3	294.1	212.4	295.1	212.4
54	0	288.1	216.0	289.1	216.0	290.1	216.1	291.1	216.1	292.1	216.2	293.1	216.2	294.1	216.3	295.1	216.3
55	0	288.1	219.9	289.1	219.9	290.1	219.9	291.1	219.9	292.1	220.0	293.1	220.0	294.1	220.1	295.1	220.1
56	0	288.1	223.8	289.1	223.8	290.1	223.9	291.1	223.9	292.1	224.0	293.1	224.0	294.1	224.1	295.1	224.1
57	0	288.1	227.7	289.1	227.7	290.1	227.8	291.1	227.8	292.1	227.9	293.1	227.9	294.1	228.0	295.1	228.0
58	0	288.1	231.6	289.1	231.6	290.1	231.7	291.1	231.7	292.1	231.8	293.1	231.8	294.1	231.9	295.1	231.9
59	0	288.1	235.5	289.1	235.5	290.1	235.6	291.1	235.6	292.1	235.7	293.1	235.7	294.1	235.8	295.1	235.8
60	0	288.1	239.4	289.1	239.4	290.1	239.5	291.1	239.5	292.1	239.6	293.1	239.6	294.1	239.7	295.1	239.7
61	0	288.1	243.3	289.1	243.3	290.1	243.4	291.1	243.4	292.1	243.5	293.1	243.5	294.1	243.6	295.1	243.6
62	0	288.1	247.2	289.1	247.2	290.1	247.3	291.1	247.3	292.1	247.4	293.1	247.4	294.1	247.5	295.1	247.5
63	0	288.1	251.1	289.1	251.1	290.1	251.2	291.1	251.2	292.1	251.3	293.1	251.3	294.1	251.4	295.1	251.4
64	0	288.1	255.0	289.1	255.0	290.1	255.1	291.1	255.1	292.1	255.2	293.1	255.2	294.1	255.3	295.1	255.3
65	0	288.1	258.9	289.1	258.9	290.1	259.0	291.1	259.0	292.1	259.1	293.1	259.1	294.1	259.2	295.1	259.2
66	0	288.1	262.8	289.1	262.8	290.1	262.9	291.1	262.9	292.1	263.0	293.1	263.0	294.1	26		

MERIDIONAL PARTS.

DEGREES OF LATITUDE.																Minutes of Lat.
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	
0.0	60.0	120.0	180.1	240.2	300.4	360.7	421.1	481.6	542.2	603.1	664.1	725.3	786.8	848.5	910.5	0
1.0	61.0	121.0	181.1	241.2	301.4	361.7	422.1	482.6	543.3	604.1	665.1	726.3	787.8	849.5	911.5	1
2.0	62.0	122.0	182.1	242.2	302.4	362.7	423.1	483.6	544.3	605.1	666.1	727.4	788.8	850.5	912.5	2
3.0	63.0	123.0	183.1	243.2	303.4	363.7	424.1	484.6	545.3	606.2	667.2	728.4	789.9	851.6	913.6	3
4.0	64.0	124.0	184.1	244.2	304.4	364.7	425.1	485.6	546.3	607.2	668.2	729.4	790.9	852.6	914.6	4
5.0	65.0	125.0	185.1	245.2	305.4	365.7	426.1	486.6	547.3	608.2	669.2	730.4	791.9	853.6	915.6	5
6.0	66.0	126.0	186.1	246.2	306.4	366.7	427.1	487.6	548.3	609.2	670.2	731.5	792.9	854.7	916.7	6
7.0	67.0	127.0	187.1	247.2	307.4	367.7	428.1	488.6	549.3	610.2	671.2	732.5	793.9	855.7	917.7	7
8.0	68.0	128.0	188.1	248.2	308.4	368.7	429.1	489.6	550.3	611.2	672.2	733.5	794.9	856.7	918.8	8
9.0	69.0	129.0	189.1	249.2	309.4	369.7	430.1	490.7	551.4	612.2	673.3	734.5	795.9	857.8	919.8	9
10.0	70.0	130.0	190.1	250.2	310.4	370.7	431.1	491.7	552.4	613.2	674.3	735.6	797.0	858.8	920.8	10
11.0	71.0	131.0	191.1	251.2	311.4	371.7	432.1	492.7	553.4	614.2	675.3	736.6	798.1	859.9	921.9	11
12.0	72.0	132.0	192.1	252.2	312.4	372.7	433.1	493.7	554.4	615.3	676.3	737.6	799.1	860.9	922.9	12
13.0	73.0	133.0	193.1	253.2	313.4	373.7	434.2	494.7	555.4	616.3	677.3	738.6	800.1	861.9	923.9	13
14.0	74.0	134.0	194.1	254.2	314.4	374.7	435.2	495.7	556.4	617.3	678.4	739.6	801.1	862.9	924.9	14
15.0	75.0	135.0	195.1	255.2	315.4	375.7	436.2	496.7	557.4	618.3	679.4	740.7	802.1	863.9	925.9	15
16.0	76.0	136.0	196.1	256.2	316.4	376.8	437.2	497.7	558.4	619.3	680.4	741.7	803.1	864.9	926.9	16
17.0	77.0	137.0	197.1	257.2	317.4	377.8	438.2	498.7	559.4	620.3	681.4	742.7	804.1	865.9	927.9	17
18.0	78.0	138.0	198.1	258.2	318.4	378.8	439.2	499.7	560.4	621.3	682.4	743.7	805.1	866.9	928.9	18
19.0	79.0	139.0	199.1	259.2	319.4	379.8	440.2	500.7	561.4	622.3	683.5	744.7	806.1	867.9	929.9	19
20.0	80.0	140.0	200.1	260.2	320.4	380.8	441.2	501.7	562.4	623.3	684.5	745.8	807.1	868.9	931.2	20
21.0	81.0	141.0	201.1	261.2	321.4	381.8	442.2	502.7	563.4	624.3	685.5	746.8	808.1	869.9	932.2	21
22.0	82.0	142.0	202.1	262.2	322.4	382.8	443.2	503.7	564.4	625.3	686.5	747.8	809.1	871.2	933.3	22
23.0	83.0	143.0	203.1	263.2	323.4	383.8	444.2	504.7	565.4	626.3	687.5	748.9	810.1	872.2	934.3	23
24.0	84.0	144.0	204.1	264.2	324.4	384.8	445.2	505.7	566.4	627.3	688.6	749.9	811.1	873.2	935.3	24
25.0	85.0	145.0	205.1	265.2	325.4	385.8	446.2	506.7	567.4	628.3	689.6	750.9	812.1	874.2	936.4	25
26.0	86.0	146.0	206.1	266.2	326.4	386.8	447.2	507.7	568.4	629.3	690.6	751.9	813.1	875.2	937.4	26
27.0	87.0	147.0	207.1	267.2	327.4	387.8	448.2	508.7	569.4	630.3	691.6	752.9	814.1	876.2	938.4	27
28.0	88.0	148.0	208.1	268.2	328.4	388.8	449.2	509.7	570.4	631.3	692.6	753.9	815.1	877.2	939.5	28
29.0	89.0	149.0	209.1	269.2	329.4	389.8	450.2	510.7	571.4	632.3	693.7	754.9	816.1	878.2	940.5	29
30.0	90.0	150.0	210.1	270.2	330.4	390.8	451.2	511.7	572.4	633.3	694.7	755.9	817.1	879.2	941.6	30
31.0	91.0	151.0	211.1	271.2	331.4	391.8	452.2	512.7	573.4	634.3	695.7	756.9	818.1	880.2	942.6	31
32.0	92.0	152.0	212.1	272.2	332.4	392.8	453.2	513.7	574.4	635.3	696.7	757.9	819.1	881.2	943.6	32
33.0	93.0	153.0	213.1	273.2	333.4	393.8	454.2	514.7	575.4	636.3	697.7	758.9	820.1	882.2	944.7	33
34.0	94.0	154.0	214.1	274.2	334.4	394.8	455.2	515.7	576.4	637.3	698.8	759.9	821.1	883.2	945.7	34
35.0	95.0	155.0	215.1	275.2	335.4	395.8	456.2	516.7	577.4	638.3	699.8	761.1	822.1	884.2	946.7	35
36.0	96.0	156.0	216.1	276.2	336.4	396.8	457.2	517.7	578.4	639.3	700.8	762.1	823.1	885.2	947.8	36
37.0	97.0	157.0	217.1	277.2	337.4	397.8	458.2	518.7	579.4	640.3	701.8	763.1	824.1	886.2	948.8	37
38.0	98.0	158.0	218.1	278.2	338.4	398.8	459.2	519.7	580.4	641.3	702.8	764.1	825.1	887.2	949.9	38
39.0	99.0	159.0	219.1	279.2	339.4	399.8	460.2	520.7	581.4	642.3	703.8	765.1	826.1	888.2	950.9	39
40.0	100.0	160.0	220.1	280.2	340.4	400.8	461.2	521.7	582.4	643.3	704.8	766.1	827.1	889.2	951.9	40
41.0	101.0	161.0	221.1	281.2	341.4	401.8	462.2	522.7	583.4	644.3	705.8	767.1	828.1	890.2	953.0	41
42.0	102.0	162.0	222.1	282.2	342.4	402.8	463.2	523.7	584.4	645.3	706.8	768.1	829.1	891.2	954.0	42
43.0	103.0	163.0	223.1	283.2	343.4	403.8	464.2	524.7	585.4	646.3	707.8	769.1	830.1	892.2	955.0	43
44.0	104.0	164.0	224.1	284.2	344.4	404.8	465.2	525.7	586.4	647.3	708.8	770.1	831.1	893.2	956.0	44
45.0	105.0	165.0	225.1	285.2	345.4	405.8	466.2	526.7	587.4	648.3	709.8	771.1	832.1	894.2	957.1	45
46.0	106.0	166.0	226.1	286.2	346.4	406.8	467.2	527.7	588.4	649.3	710.8	772.1	833.1	895.2	958.1	46
47.0	107.0	167.0	227.1	287.2	347.4	407.8	468.2	528.7	589.4	650.3	711.8	773.1	834.1	896.2	959.2	47
48.0	108.0	168.0	228.1	288.2	348.4	408.8	469.2	529.7	590.4	651.3	712.8	774.1	835.1	897.2	960.2	48
49.0	109.0	169.0	229.1	289.2	349.4	409.8	470.2	530.7	591.4	652.3	713.8	775.1	836.1	898.2	961.3	49
50.0	110.0	170.0	230.1	290.2	350.4	410.8	471.2	531.7	592.4	653.3	714.8	776.1	837.1	899.2	962.3	50
51.0	111.0	171.0	231.1	291.2	351.4	411.8	472.2	532.7	593.4	654.3	715.8	777.1	838.1	900.2	963.3	51
52.0	112.0	172.0	232.1	292.2	352.4	412.8	473.2	533.7	594.4	655.3	716.8	778.1	839.1	901.2	964.3	52
53.0	113.0	173.0	233.1	293.2	353.4	413.8	474.2	534.7	595.4	656.3	717.8	779.1	840.1	902.2	965.3	53
54.0	114.0	174.0	234.1	294.2	354.4	414.8	475.2	535.7	596.4	657.3	718.8	780.1	841.1	903.2	966.3	54
55.0	115.0	175.0	235.1	295.2	355.4	415.8	476.2	536.7	597.4	658.3	719.8	781.1	842.1	904.2	967.3	55
56.0	116.0	176.0	236.1	296.2	356.4	416.8	477.2	537.7	598.4	659.3	720.8	782.1	843.1	905.2	968.3	56
57.0	117.0	177.0	237.1	297.2	357.4	417.8	478.2	538.7	599.4	660.3	721.8	783.1	844.1	906.2	969.3	57
58.0	118.0	178.0	238.1	298.2	358.4	418.8	479.2	539.7	600.4	661.3	722.8	784.1	845.1	907.2	970.3	58
59.0	119.0	179.0	239.1	299.2	359.4	419.8	480.2	540.7	601.4	662.3	723.8	785.1	846.1	908.2	971.3	59
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	Minutes of Lat.

DEGREES OF LATITUDE.

MERIDIONAL PARTS.

of Lat.		DEGREES OF LATITUDE.													Minutes of Lat.
		29°	30°	31°	32°	33°	34°	35°	36°	37°	38°	39°	40°	41°	
0	1819.4	1888.4	1958.0	2028.4	2099.5	2171.5	2244.3	2318.0	2392.6	2468.3	2544.9	2622.7	2701.6	2781.6	0
1	1820.6	1889.5	1959.2	2029.6	2100.7	2172.7	2245.5	2319.2	2393.9	2469.5	2546.2	2624.0	2702.9	2782.9	1
2	1821.7	1890.7	1960.3	2030.7	2101.9	2173.9	2246.7	2320.5	2395.1	2470.8	2547.5	2625.3	2704.2	2784.2	2
3	1822.9	1891.8	1961.5	2031.9	2103.1	2175.1	2247.9	2321.7	2396.4	2472.1	2548.8	2626.6	2705.6	2785.6	3
4	1824.0	1893.0	1962.7	2033.1	2104.3	2176.3	2249.2	2322.9	2397.6	2473.3	2550.1	2627.9	2706.9	2786.9	4
5	1825.2	1894.1	1963.8	2034.3	2105.5	2177.5	2250.4	2324.2	2398.9	2474.6	2551.4	2629.2	2708.2	2788.2	5
6	1826.3	1895.3	1965.0	2035.5	2106.7	2178.7	2251.6	2325.4	2400.1	2475.9	2552.7	2630.5	2709.5	2789.5	6
7	1827.4	1896.5	1966.2	2036.6	2107.9	2179.9	2252.8	2326.6	2401.4	2477.1	2553.9	2631.8	2710.9	2790.9	7
8	1828.5	1897.6	1967.3	2037.8	2109.1	2181.1	2254.1	2327.9	2402.7	2478.4	2555.2	2633.1	2712.2	2792.2	8
9	1829.7	1898.8	1968.5	2039.0	2110.3	2182.3	2255.3	2329.1	2403.9	2479.7	2556.5	2634.4	2713.5	2793.5	9
10	1830.9	1899.9	1969.7	2040.2	2111.5	2183.5	2256.5	2330.4	2405.2	2481.0	2557.8	2635.8	2714.9	2794.9	10
11	1832.0	1901.1	1970.9	2041.4	2112.7	2184.8	2257.7	2331.6	2406.4	2482.2	2559.1	2637.1	2716.2	2796.2	11
12	1833.2	1902.2	1972.0	2042.5	2113.8	2186.0	2258.9	2332.8	2407.7	2483.5	2560.4	2638.4	2717.5	2797.5	12
13	1834.3	1903.4	1973.2	2043.7	2115.0	2187.2	2260.2	2334.1	2408.9	2484.8	2561.7	2639.7	2718.8	2798.8	13
14	1835.5	1904.6	1974.4	2044.9	2116.2	2188.4	2261.4	2335.3	2410.2	2486.1	2563.0	2641.0	2720.2	2799.9	14
15	1836.6	1905.7	1975.5	2046.1	2117.4	2189.6	2262.6	2336.6	2411.4	2487.3	2564.3	2642.3	2721.5	2801.2	15
16	1837.7	1906.9	1976.7	2047.3	2118.6	2190.8	2263.8	2337.8	2412.7	2488.6	2565.6	2643.6	2722.8	2802.5	16
17	1838.8	1908.0	1977.9	2048.5	2119.8	2192.0	2265.1	2339.0	2414.0	2489.9	2566.8	2644.9	2724.2	2803.8	17
18	1840.0	1909.2	1979.1	2049.7	2121.0	2193.2	2266.3	2340.3	2415.2	2491.1	2568.1	2646.2	2725.5	2805.1	18
19	1841.2	1910.3	1980.2	2050.8	2122.2	2194.4	2267.5	2341.5	2416.5	2492.4	2569.4	2647.5	2726.8	2806.4	19
20	1842.3	1911.5	1981.4	2052.0	2123.4	2195.6	2268.7	2342.8	2417.7	2493.7	2570.7	2648.8	2728.2	2807.7	20
21	1843.5	1912.7	1982.6	2053.2	2124.6	2196.9	2270.0	2344.0	2419.0	2495.0	2572.0	2650.2	2729.5	2809.0	21
22	1844.6	1913.8	1983.7	2054.4	2125.8	2198.1	2271.2	2345.2	2420.2	2496.2	2573.3	2651.5	2730.8	2810.3	22
23	1845.8	1915.0	1984.9	2055.6	2127.0	2199.3	2272.4	2346.5	2421.5	2497.5	2574.6	2652.8	2732.2	2811.6	23
24	1846.9	1916.1	1986.1	2056.7	2128.2	2200.5	2273.7	2347.7	2422.8	2498.8	2575.9	2654.1	2733.5	2812.9	24
25	1848.1	1917.3	1987.3	2057.9	2129.4	2201.7	2274.9	2349.0	2424.0	2500.1	2577.2	2655.4	2734.8	2814.2	25
26	1849.2	1918.5	1988.4	2059.1	2130.6	2202.9	2276.1	2350.2	2425.3	2501.3	2578.5	2656.7	2736.2	2815.5	26
27	1850.4	1919.6	1989.6	2060.3	2131.8	2204.1	2277.3	2351.5	2426.5	2502.6	2579.8	2658.0	2737.5	2816.8	27
28	1851.5	1920.8	1990.8	2061.5	2133.0	2205.3	2278.6	2352.7	2427.8	2503.9	2581.1	2659.4	2738.8	2818.0	28
29	1852.7	1921.9	1991.9	2062.7	2134.2	2206.6	2279.8	2353.9	2429.1	2505.2	2582.4	2660.7	2740.2	2819.3	29
30	1853.8	1923.1	1993.1	2063.9	2135.4	2207.8	2281.0	2355.2	2430.3	2506.5	2583.7	2662.0	2741.5	2820.6	30
31	1855.0	1924.3	1994.3	2065.1	2136.6	2209.0	2282.2	2356.4	2431.6	2507.7	2585.0	2663.3	2742.8	2821.9	31
32	1856.1	1925.4	1995.4	2066.2	2137.8	2210.2	2283.5	2357.7	2432.8	2509.0	2586.3	2664.6	2744.2	2823.2	32
33	1857.3	1926.6	1996.6	2067.4	2139.0	2211.4	2284.7	2358.9	2434.1	2510.3	2587.6	2665.9	2745.5	2824.5	33
34	1858.4	1927.7	1997.8	2068.6	2140.2	2212.6	2285.9	2360.2	2435.4	2511.6	2588.9	2667.2	2746.8	2825.8	34
35	1859.6	1928.9	1999.0	2069.8	2141.4	2213.8	2287.2	2361.4	2436.6	2512.9	2590.1	2668.5	2748.2	2827.0	35
36	1860.7	1930.0	2000.1	2071.0	2142.6	2215.1	2288.4	2362.7	2437.9	2514.1	2591.4	2669.9	2749.5	2828.3	36
37	1861.9	1931.2	2001.3	2072.2	2143.8	2216.3	2289.6	2363.9	2439.1	2515.4	2592.7	2671.2	2750.8	2829.6	37
38	1863.0	1932.4	2002.5	2073.3	2145.0	2217.5	2290.9	2365.1	2440.4	2516.7	2594.0	2672.5	2752.2	2830.8	38
39	1864.2	1933.6	2003.7	2074.5	2146.2	2218.7	2292.1	2366.4	2441.7	2518.0	2595.3	2673.8	2753.5	2832.1	39
40	1865.3	1934.7	2004.8	2075.7	2147.4	2219.9	2293.3	2367.6	2442.9	2519.2	2596.6	2675.2	2754.9	2833.4	40
41	1866.5	1935.9	2006.0	2076.9	2148.6	2221.1	2294.5	2368.9	2444.2	2520.5	2597.9	2676.5	2756.2	2834.7	41
42	1867.6	1937.0	2007.2	2078.1	2149.8	2222.3	2295.8	2370.1	2445.5	2521.8	2599.2	2677.8	2757.5	2836.0	42
43	1868.8	1938.2	2008.4	2079.3	2151.0	2223.6	2297.0	2371.4	2446.7	2523.1	2600.5	2679.1	2758.9	2837.3	43
44	1869.9	1939.4	2009.5	2080.5	2152.2	2224.8	2298.2	2372.6	2448.0	2524.4	2601.8	2680.4	2760.2	2838.6	44
45	1871.1	1940.5	2010.7	2081.7	2153.4	2226.0	2299.5	2373.9	2449.3	2525.7	2603.1	2681.8	2761.6	2839.9	45
46	1872.2	1941.7	2011.9	2082.9	2154.6	2227.2	2300.7	2375.1	2450.5	2526.9	2604.4	2683.1	2762.9	2841.2	46
47	1873.4	1942.9	2013.1	2084.1	2155.8	2228.4	2301.9	2376.4	2451.8	2528.2	2605.7	2684.4	2764.2	2842.5	47
48	1874.5	1944.0	2014.2	2085.3	2157.0	2229.7	2303.2	2377.6	2453.0	2529.5	2607.0	2685.7	2765.6	2843.8	48
49	1875.7	1945.2	2015.4	2086.5	2158.2	2230.9	2304.4	2378.9	2454.3	2530.8	2608.3	2687.0	2766.9	2845.1	49
50	1876.8	1946.4	2016.6	2087.7	2159.4	2232.1	2305.6	2380.1	2455.6	2532.1	2609.6	2688.4	2768.3	2846.4	50
51	1878.0	1947.5	2017.8	2088.8	2160.6	2233.3	2306.9	2381.4	2456.8	2533.4	2610.9	2689.7	2769.6	2847.7	51
52	1879.1	1948.7	2019.0	2090.0	2161.8	2234.5	2308.1	2382.6	2458.1	2534.6	2612.3	2691.0	2771.0	2849.0	52
53	1880.3	1949.8	2020.1	2091.2	2163.0	2235.7	2309.3	2383.9	2459.4	2535.9	2613.6	2692.3	2772.3	2850.3	53
54	1881.4	1951.0	2021.3	2092.4	2164.2	2237.0	2310.6	2385.1	2460.6	2537.2	2614.9	2693.6	2773.6	2851.6	54
55	1882.6	1952.2	2022.5	2093.6	2165.4	2238.2	2311.8	2386.4	2461.9	2538.5	2616.2	2695.0	2775.0	2852.9	55
56	1883.8	1953.3	2023.7	2094.8	2166.6	2239.4	2313.0	2387.6	2463.2	2539.8	2617.5	2696.3	2776.3	2854.2	56
57	1884.9	1954.5	2024.8	2096.0	2167.8	2240.6	2314.3	2388.9	2464.5	2541.1	2618.8	2697.6	2777.7	2855.5	57
58	1886.1	1955.7	2026.0	2097.1	2169.0	2241.8	2315.5	2390.1	2465.7	2542.4	2620.1	2698.9	2779.0	2856.8	58
59	1887.2	1956.8	2027.2	2098.3	2170.3	2243.1	2316.7	2391.4	2467.0	2543.6	2621.4	2700.3	2780.4	2858.0	59
of Lat.		29°	30°	31°	32°	33°	34°	35°	36°	37°	38°	39°	40°	41°	Minutes of Lat.
		DEGREES OF LATITUDE.													

MERIDIONAL PARTS.

Minutes of Lat.	DEGREES OF LATITUDE.														Minutes of Lat.
	42°	43°	44°	45°	46°	47°	48°	49°	50°	51°	52°	53°	54°		
0	2781.7	2863.1	2945.8	3029.9	3115.5	3202.7	3291.5	3382.1	3474.5	3568.8	3665.2	3763.8	3864.6	0	
1	2783.1	2864.5	2947.2	3031.3	3117.0	3204.2	3293.0	3383.6	3476.0	3570.4	3666.8	3765.4	3866.3	1	
2	2784.4	2865.8	2948.6	3032.8	3118.4	3205.6	3294.5	3385.1	3477.6	3572.0	3668.4	3767.1	3867.0	2	
3	2785.7	2867.2	2950.0	3034.2	3119.9	3207.1	3296.0	3386.7	3479.1	3573.6	3670.1	3768.7	3867.9	3	
4	2787.1	2868.6	2951.4	3035.6	3121.3	3208.6	3297.5	3388.2	3480.6	3575.2	3671.7	3770.4	3871.4	4	
5	2788.4	2869.9	2952.8	3037.0	3122.7	3210.0	3299.0	3389.7	3482.0	3576.8	3673.3	3772.1	3873.1	5	
6	2789.8	2871.3	2954.2	3038.4	3124.2	3211.5	3300.5	3391.2	3483.5	3578.3	3674.9	3773.7	3874.9	6	
7	2791.1	2872.7	2955.6	3039.8	3125.6	3213.0	3302.0	3392.8	3485.0	3579.9	3676.6	3775.4	3876.6	7	
8	2792.5	2874.0	2956.9	3041.3	3127.1	3214.5	3303.5	3394.3	3486.5	3581.5	3678.2	3777.1	3878.3	8	
9	2793.8	2875.4	2958.3	3042.7	3128.5	3215.9	3305.0	3395.8	3488.0	3583.1	3679.8	3778.7	3880.0	9	
10	2795.2	2876.8	2959.7	3044.1	3130.0	3217.4	3306.5	3397.3	3490.0	3584.7	3681.5	3780.4	3881.7	10	
11	2796.5	2878.1	2961.1	3045.5	3131.4	3218.9	3308.0	3398.8	3491.5	3586.3	3683.1	3782.1	3883.4	11	
12	2797.9	2879.5	2962.5	3046.9	3132.8	3220.3	3309.5	3400.3	3493.0	3587.9	3684.7	3783.7	3885.1	12	
13	2799.2	2880.9	2963.9	3048.3	3134.2	3221.8	3311.0	3401.9	3494.5	3589.5	3686.4	3785.4	3886.8	13	
14	2800.6	2882.3	2965.3	3049.8	3135.7	3223.3	3312.5	3403.5	3496.0	3591.1	3688.0	3787.1	3888.5	14	
15	2801.9	2883.6	2966.7	3051.2	3137.1	3224.8	3314.0	3405.0	3497.5	3592.7	3689.6	3788.8	3890.2	15	
16	2803.3	2885.0	2968.1	3052.6	3138.6	3226.2	3315.5	3406.5	3499.0	3594.3	3691.3	3790.4	3891.9	16	
17	2804.6	2886.4	2969.5	3054.0	3140.0	3227.7	3317.0	3408.0	3501.0	3595.9	3692.9	3792.1	3893.7	17	
18	2806.0	2887.8	2970.9	3055.5	3141.5	3229.2	3318.5	3409.5	3502.0	3597.5	3694.5	3793.8	3895.4	18	
19	2807.3	2889.1	2972.3	3056.9	3143.0	3230.7	3320.0	3411.1	3504.1	3599.1	3696.2	3795.4	3897.1	19	
20	2808.7	2890.5	2973.7	3058.3	3144.4	3232.1	3321.5	3412.7	3505.7	3600.7	3697.8	3797.1	3898.8	20	
21	2810.0	2891.9	2975.1	3059.7	3145.8	3233.6	3323.0	3414.2	3507.3	3602.3	3699.4	3798.8	3900.5	21	
22	2811.4	2893.3	2976.5	3061.1	3147.2	3235.0	3324.5	3415.7	3508.8	3603.9	3701.1	3800.5	3902.2	22	
23	2812.8	2894.7	2977.9	3062.5	3148.6	3236.5	3326.0	3417.2	3510.4	3605.5	3702.7	3802.1	3903.9	23	
24	2814.1	2896.0	2979.3	3063.9	3150.0	3237.9	3327.5	3418.7	3512.0	3607.1	3704.3	3803.8	3905.7	24	
25	2815.5	2897.4	2980.7	3065.3	3151.4	3239.3	3329.0	3420.2	3513.5	3608.7	3706.0	3805.5	3907.4	25	
26	2816.8	2898.8	2982.1	3066.7	3152.8	3240.7	3330.5	3421.7	3515.1	3610.3	3707.6	3807.2	3909.1	26	
27	2818.2	2900.2	2983.5	3068.1	3154.2	3242.1	3332.0	3423.2	3516.7	3611.9	3709.2	3808.9	3910.8	27	
28	2819.5	2901.5	2984.9	3069.5	3155.6	3243.5	3333.5	3424.7	3518.2	3613.5	3710.8	3810.5	3912.5	28	
29	2820.9	2902.9	2986.3	3071.0	3157.0	3244.9	3335.0	3426.2	3519.8	3615.1	3712.4	3812.2	3914.3	29	
30	2822.2	2904.3	2987.7	3072.4	3158.4	3246.3	3336.5	3427.7	3521.4	3616.7	3714.0	3813.9	3916.0	30	
31	2823.6	2905.7	2989.1	3073.8	3159.8	3247.7	3338.0	3429.2	3523.0	3618.3	3715.6	3815.6	3917.7	31	
32	2824.9	2907.0	2990.5	3075.2	3161.2	3249.1	3339.5	3430.7	3524.6	3619.9	3717.2	3817.3	3919.4	32	
33	2826.3	2908.4	2991.9	3076.6	3162.6	3250.5	3341.0	3432.2	3526.1	3621.5	3718.8	3818.9	3921.2	33	
34	2827.7	2909.8	2993.3	3078.0	3164.0	3251.9	3342.5	3433.7	3527.7	3623.1	3720.4	3820.6	3922.9	34	
35	2829.0	2911.2	2994.7	3079.4	3165.4	3253.3	3344.0	3435.2	3529.2	3624.7	3722.0	3822.3	3924.6	35	
36	2830.4	2912.6	2996.1	3080.8	3166.8	3254.7	3345.5	3436.7	3530.8	3626.3	3723.6	3824.0	3926.3	36	
37	2831.7	2913.9	2997.5	3082.2	3168.2	3256.1	3346.9	3438.1	3532.4	3627.9	3725.2	3825.7	3928.1	37	
38	2833.1	2915.3	2998.9	3083.6	3169.6	3257.5	3348.3	3440.0	3534.0	3629.5	3726.8	3827.4	3929.8	38	
39	2834.4	2916.7	3000.3	3085.0	3171.0	3258.9	3350.0	3441.9	3535.6	3631.1	3728.4	3829.1	3931.5	39	
40	2835.8	2918.1	3001.7	3086.4	3172.4	3260.3	3351.5	3443.5	3537.1	3632.7	3730.0	3830.7	3933.2	40	
41	2837.2	2919.5	3003.1	3087.8	3173.8	3261.7	3353.0	3445.0	3538.7	3634.3	3731.6	3832.4	3935.0	41	
42	2838.5	2920.9	3004.5	3089.2	3175.2	3263.1	3354.5	3446.6	3540.3	3635.9	3733.2	3834.1	3936.7	42	
43	2839.9	2922.3	3005.9	3090.6	3176.6	3264.5	3356.0	3448.1	3541.9	3637.5	3734.8	3835.8	3938.4	43	
44	2841.3	2923.7	3007.3	3092.0	3178.0	3265.9	3357.5	3449.6	3543.5	3639.1	3736.4	3837.5	3940.2	44	
45	2842.6	2925.0	3008.7	3093.4	3179.4	3267.3	3359.0	3451.2	3545.0	3640.7	3738.0	3839.2	3941.9	45	
46	2844.0	2926.4	3010.1	3094.8	3180.8	3268.7	3360.5	3452.7	3546.6	3642.3	3739.6	3840.9	3943.6	46	
47	2845.3	2927.8	3011.5	3096.2	3182.2	3270.1	3362.0	3454.3	3548.2	3644.0	3741.2	3842.6	3945.4	47	
48	2846.7	2929.2	3012.9	3097.6	3183.6	3271.5	3363.5	3455.8	3549.8	3645.6	3742.8	3844.3	3947.1	48	
49	2848.1	2930.6	3014.3	3099.0	3185.0	3272.9	3365.0	3457.4	3551.4	3647.2	3744.4	3846.0	3948.8	49	
50	2849.4	2931.9	3015.7	3100.4	3186.4	3274.3	3366.5	3458.9	3552.9	3648.9	3746.0	3847.7	3950.6	50	
51	2850.8	2933.3	3017.1	3101.8	3187.8	3275.7	3368.0	3460.5	3554.5	3650.5	3747.6	3849.3	3952.3	51	
52	2852.2	2934.7	3018.5	3103.2	3189.2	3277.1	3369.5	3462.0	3556.1	3652.1	3749.2	3851.0	3954.0	52	
53	2853.5	2936.1	3019.9	3104.6	3190.6	3278.5	3371.0	3463.5	3557.7	3653.7	3750.8	3852.7	3955.8	53	
54	2854.9	2937.5	3021.3	3106.0	3192.0	3280.0	3372.4	3465.0	3559.3	3655.3	3752.4	3854.4	3957.5	54	
55	2856.3	2938.9	3022.7	3107.4	3193.4	3281.4	3373.9	3466.6	3560.9	3656.9	3754.0	3856.1	3959.3	55	
56	2857.6	2940.3	3024.1	3108.8	3194.8	3282.8	3375.3	3468.1	3562.5	3658.5	3755.6	3857.8	3961.0	56	
57	2859.0	2941.7	3025.5	3110.2	3196.2	3284.2	3376.8	3469.7	3564.1	3660.1	3757.2	3859.5	3962.7	57	
58	2860.4	2943.1	3026.9	3111.6	3197.6	3285.6	3378.2	3471.2	3565.7	3661.7	3758.8	3861.2	3964.5	58	
59	2861.7	2944.5	3028.3	3113.0	3199.0	3287.0	3379.7	3472.8	3567.3	3663.3	3760.4	3862.9	3966.2	59	
Minutes of Lat.	42°	43°	44°	45°	46°	47°	48°	49°	50°	51°	52°	53°	54°	Minutes of Lat.	

DEGREES OF LATITUDE.

MERIDIONAL PARTS.

Minutes of Lat.	DEGREES OF LATITUDE.												Minutes of Lat.
	55°	56°	57°	58°	59°	60°	61°	62°	63°	64°	65°	66°	
0	3968.0	4073.9	4182.6	4294.3	4409.1	4527.4	4649.2	4775.0	4904.9	5039.4	5178.8	5323.5	0
1	3969.7	4075.7	4184.5	4296.2	4411.1	4529.4	4651.3	4777.1	4907.1	5041.7	5181.2	5326.0	1
2	3971.5	4077.5	4186.3	4298.0	4413.0	4531.4	4653.3	4779.2	4909.3	5044.0	5183.5	5328.4	2
3	3973.2	4079.3	4188.1	4300.0	4415.0	4533.4	4655.4	4781.4	4911.5	5046.3	5185.9	5330.9	3
4	3974.9	4081.1	4190.0	4301.8	4416.9	4535.4	4657.5	4783.5	4913.8	5048.6	5188.3	5333.4	4
5	3976.7	4082.9	4191.8	4303.7	4418.9	4537.4	4659.5	4785.6	4916.0	5050.8	5190.7	5335.8	5
6	3978.4	4084.6	4193.6	4305.6	4420.8	4539.4	4661.6	4787.8	4918.2	5053.1	5193.0	5338.3	6
7	3980.2	4086.4	4195.5	4307.5	4422.8	4541.4	4663.7	4789.9	4920.4	5055.4	5195.4	5340.8	7
8	3981.9	4088.2	4197.3	4309.4	4424.7	4543.4	4665.8	4792.1	4922.6	5057.7	5197.8	5343.2	8
9	3983.7	4090.0	4199.2	4311.3	4426.6	4545.4	4667.8	4794.2	4924.8	5060.0	5200.2	5345.7	9
10	3985.4	4091.8	4201.0	4313.2	4428.6	4547.4	4669.9	4796.3	4927.0	5062.3	5202.5	5348.2	10
11	3987.2	4093.6	4202.9	4315.1	4430.6	4549.4	4672.0	4798.5	4929.2	5064.6	5204.9	5350.7	11
12	3988.9	4095.4	4204.7	4317.0	4432.5	4551.4	4674.1	4800.6	4931.5	5066.9	5207.3	5353.1	12
13	3990.7	4097.2	4206.6	4318.9	4434.5	4553.4	4676.1	4802.8	4933.7	5069.2	5209.7	5355.6	13
14	3992.4	4099.0	4208.4	4320.8	4436.4	4555.5	4678.2	4804.9	4935.9	5071.5	5212.1	5358.1	14
15	3994.2	4100.8	4210.3	4322.7	4438.4	4557.5	4680.3	4807.1	4938.1	5073.8	5214.5	5360.6	15
16	3996.0	4102.6	4212.1	4324.6	4440.3	4559.5	4682.4	4809.2	4940.3	5076.1	5216.9	5363.1	16
17	3997.7	4104.4	4213.9	4326.5	4442.3	4561.5	4684.4	4811.4	4942.6	5078.4	5219.2	5365.5	17
18	3999.5	4106.2	4215.8	4328.4	4444.2	4563.5	4686.5	4813.5	4944.8	5080.7	5221.6	5368.0	18
19	4001.2	4108.0	4217.7	4330.3	4446.2	4565.5	4688.6	4815.7	4947.0	5083.0	5224.0	5370.5	19
20	4003.0	4109.8	4219.5	4332.2	4448.2	4567.6	4690.7	4817.8	4949.2	5085.3	5226.4	5373.0	20
21	4004.7	4111.6	4221.4	4334.1	4450.1	4569.6	4692.8	4820.0	4951.5	5087.6	5228.8	5375.5	21
22	4006.5	4113.4	4223.2	4336.0	4452.1	4571.6	4694.9	4822.1	4953.7	5089.9	5231.2	5378.0	22
23	4008.3	4115.2	4225.1	4337.9	4454.0	4573.6	4697.0	4824.3	4955.9	5092.2	5233.6	5380.5	23
24	4010.0	4117.0	4226.9	4339.8	4456.0	4575.7	4699.0	4826.4	4958.2	5094.6	5236.0	5383.0	24
25	4011.8	4118.8	4228.8	4341.7	4458.0	4577.7	4701.1	4828.6	4960.4	5096.9	5238.4	5385.5	25
26	4013.5	4120.6	4230.6	4343.7	4459.9	4579.7	4703.2	4830.8	4962.6	5099.2	5240.8	5388.0	26
27	4015.3	4122.5	4232.5	4345.6	4461.9	4581.7	4705.3	4832.9	4964.9	5101.5	5243.2	5390.5	27
28	4017.1	4124.3	4234.4	4347.5	4463.8	4583.8	4707.4	4835.1	4967.1	5103.8	5245.6	5393.0	28
29	4018.8	4126.1	4236.2	4349.4	4465.8	4585.8	4709.5	4837.2	4969.3	5106.2	5248.0	5395.5	29
30	4020.6	4127.9	4238.1	4351.3	4467.8	4587.8	4711.6	4839.4	4971.6	5108.5	5250.5	5398.0	30
31	4022.4	4129.7	4239.9	4353.2	4469.8	4589.9	4713.7	4841.6	4973.8	5110.8	5252.9	5400.5	31
32	4024.1	4131.5	4241.8	4355.1	4471.8	4591.9	4715.8	4843.7	4976.1	5113.1	5255.3	5403.0	32
33	4025.9	4133.3	4243.7	4357.1	4473.7	4593.9	4717.9	4845.9	4978.3	5115.4	5257.7	5405.5	33
34	4027.7	4135.2	4245.5	4359.0	4475.7	4596.0	4720.0	4848.1	4980.6	5117.8	5260.1	5408.0	34
35	4029.4	4137.0	4247.4	4360.9	4477.7	4598.0	4722.1	4850.3	4982.8	5120.1	5262.5	5410.6	35
36	4031.2	4138.8	4249.3	4362.8	4479.7	4600.0	4724.2	4852.4	4985.1	5122.4	5265.0	5413.1	36
37	4033.0	4140.6	4251.1	4364.7	4481.6	4602.1	4726.3	4854.6	4987.3	5124.8	5267.4	5415.6	37
38	4034.7	4142.4	4253.0	4366.6	4483.6	4604.1	4728.4	4856.8	4989.6	5127.1	5269.8	5418.1	38
39	4036.5	4144.2	4254.9	4368.5	4485.6	4606.1	4730.5	4859.0	4991.8	5129.4	5272.2	5420.6	39
40	4038.3	4146.1	4256.7	4370.5	4487.6	4608.2	4732.6	4861.1	4994.1	5131.8	5274.7	5423.2	40
41	4040.1	4147.9	4258.6	4372.4	4489.5	4610.2	4734.7	4863.3	4996.3	5134.1	5277.1	5425.7	41
42	4041.8	4149.7	4260.5	4374.3	4491.5	4612.3	4736.8	4865.5	4998.6	5136.4	5279.5	5428.2	42
43	4043.6	4151.5	4262.3	4376.3	4493.5	4614.3	4738.9	4867.7	5000.8	5138.8	5281.9	5430.7	43
44	4045.4	4153.3	4264.2	4378.2	4495.5	4616.4	4741.0	4869.9	5003.1	5141.1	5284.3	5433.3	44
45	4047.2	4155.2	4266.1	4380.1	4497.5	4618.4	4743.2	4872.0	5005.4	5143.5	5286.8	5435.8	45
46	4048.9	4157.0	4268.0	4382.0	4499.5	4620.4	4745.3	4874.2	5007.6	5145.8	5289.2	5438.3	46
47	4050.7	4158.8	4269.8	4384.0	4501.5	4622.5	4747.4	4876.4	5009.9	5148.2	5291.7	5440.9	47
48	4052.5	4160.6	4271.7	4385.9	4503.4	4624.5	4749.5	4878.6	5012.1	5150.5	5294.1	5443.4	48
49	4054.3	4162.5	4273.6	4387.8	4505.4	4626.6	4751.6	4880.8	5014.4	5152.9	5296.6	5446.0	49
50	4056.1	4164.3	4275.5	4389.8	4507.4	4628.6	4753.7	4883.0	5016.7	5155.2	5299.0	5448.5	50
51	4057.8	4166.1	4277.3	4391.7	4509.4	4630.7	4755.9	4885.2	5018.9	5157.6	5301.4	5451.0	51
52	4059.6	4168.0	4279.2	4393.6	4511.4	4632.8	4758.0	4887.4	5021.2	5159.9	5303.9	5453.6	52
53	4061.4	4169.8	4281.1	4395.5	4513.4	4634.8	4760.1	4889.5	5023.5	5162.3	5306.3	5456.1	53
54	4063.2	4171.6	4283.0	4397.5	4515.4	4636.9	4762.2	4891.7	5025.8	5164.6	5308.8	5458.7	54
55	4065.0	4173.4	4284.9	4399.4	4517.4	4638.9	4764.3	4893.9	5028.0	5167.0	5311.2	5461.2	55
56	4066.8	4175.3	4286.8	4401.4	4519.4	4641.0	4766.5	4896.1	5030.3	5169.4	5313.7	5463.8	56
57	4068.5	4177.1	4288.6	4403.3	4521.4	4643.0	4768.6	4898.3	5032.6	5171.7	5316.1	5466.3	57
58	4070.3	4178.9	4290.5	4405.3	4523.4	4645.1	4770.7	4900.5	5034.9	5174.1	5318.6	5468.9	58
59	4072.1	4180.8	4292.4	4407.2	4525.4	4647.2	4772.9	4902.7	5037.1	5176.4	5321.1	5471.4	59
Minutes of Lat.	55°	56°	57°	58°	59°	60°	61°	62°	63°	64°	65°	66°	Minutes of Lat.

DEGREES OF LATITUDE.

MERIDIONAL PARTS.

Minutes of Lat.	DEGREES OF LATITUDE.												Minutes of Lat.
	67°	68°	69°	70°	71°	72°	73°	74°	75°	76°	77°	78°	
0	5474.0	5630.8	5794.6	5965.9	6145.7	6334.8	6534.4	6743.7	6970.3	7210.1	7467.2	7744.6	0
1	5476.6	5633.5	5797.3	5968.8	6148.8	6338.1	6537.8	6749.4	6974.2	7214.2	7471.7	7749.4	1
2	5479.1	5636.2	5800.1	5971.8	6151.8	6341.3	6541.3	6753.0	6978.1	7218.3	7476.1	7754.2	2
3	5481.7	5638.8	5802.9	5974.7	6154.9	6344.6	6544.7	6756.6	6981.9	7222.5	7480.6	7759.0	3
4	5484.3	5641.5	5805.7	5977.6	6158.0	6347.8	6548.1	6760.3	6985.8	7226.6	7485.0	7763.9	4
5	5486.8	5644.2	5808.5	5980.6	6161.1	6351.1	6551.6	6763.9	6989.7	7230.8	7489.5	7768.7	5
6	5489.4	5646.9	5811.3	5983.5	6164.2	6354.3	6555.0	6767.6	6993.6	7235.0	7494.0	7773.5	6
7	5492.0	5649.6	5814.1	5986.4	6167.3	6357.6	6558.4	6771.2	6997.5	7239.1	7498.5	7778.4	7
8	5494.5	5652.2	5816.9	5989.4	6170.4	6360.8	6561.9	6774.9	7001.4	7243.3	7502.9	7783.3	8
9	5497.1	5654.9	5819.8	5992.3	6173.4	6364.1	6565.3	6778.5	7005.3	7247.5	7507.4	7788.1	9
10	5499.7	5657.6	5822.6	5995.3	6176.5	6367.3	6568.8	6782.2	7009.2	7251.6	7511.9	7793.0	10
11	5502.3	5660.3	5825.4	5998.2	6179.6	6370.6	6572.2	6785.9	7013.1	7255.8	7516.4	7797.9	11
12	5504.8	5663.0	5828.2	6001.2	6182.7	6373.9	6575.7	6789.5	7017.0	7260.0	7521.0	7802.8	12
13	5507.4	5665.7	5831.0	6004.1	6185.8	6377.2	6579.2	6793.2	7020.9	7264.2	7525.5	7807.7	13
14	5510.0	5668.4	5833.8	6007.1	6188.9	6380.4	6582.6	6796.9	7024.8	7268.4	7530.0	7812.6	14
15	5512.6	5671.1	5836.6	6010.0	6192.0	6383.7	6586.1	6800.6	7028.8	7272.6	7534.5	7817.5	15
16	5515.1	5673.8	5839.5	6013.0	6195.1	6387.0	6589.6	6804.3	7032.7	7276.8	7539.1	7822.4	16
17	5517.7	5676.5	5842.3	6016.0	6198.3	6390.3	6593.0	6808.0	7036.6	7281.0	7543.6	7827.3	17
18	5520.2	5679.2	5845.1	6018.9	6201.4	6393.6	6596.5	6811.6	7040.6	7285.3	7548.1	7832.2	18
19	5522.8	5681.9	5848.0	6021.9	6204.5	6396.9	6600.0	6815.3	7044.5	7289.5	7552.7	7837.2	19
20	5525.5	5684.6	5850.8	6024.9	6207.7	6400.1	6603.5	6819.0	7048.5	7293.6	7557.3	7842.1	20
21	5528.1	5687.3	5853.6	6027.8	6210.8	6403.4	6607.0	6822.7	7052.4	7297.8	7561.8	7847.0	21
22	5530.7	5690.0	5856.5	6030.8	6213.9	6406.6	6610.5	6826.5	7056.4	7302.0	7566.4	7852.0	22
23	5533.3	5692.7	5859.3	6033.8	6217.0	6410.0	6614.0	6830.2	7060.3	7306.4	7571.0	7857.0	23
24	5535.9	5695.4	5862.1	6036.8	6220.2	6413.3	6617.5	6833.9	7064.3	7310.9	7575.5	7861.9	24
25	5538.5	5698.1	5865.0	6039.7	6223.3	6416.6	6621.0	6837.6	7068.3	7314.9	7580.1	7866.9	25
26	5541.1	5700.9	5867.8	6042.7	6226.4	6420.0	6624.5	6841.3	7072.2	7319.2	7584.7	7871.9	26
27	5543.8	5703.6	5870.7	6045.7	6229.6	6423.3	6628.0	6845.1	7076.2	7323.5	7589.3	7876.9	27
28	5546.4	5706.3	5873.5	6048.7	6232.7	6426.6	6631.5	6848.8	7080.2	7327.7	7593.9	7881.9	28
29	5549.0	5709.1	5876.4	6051.7	6235.9	6429.9	6635.0	6852.5	7084.2	7332.0	7598.5	7886.9	29
30	5551.6	5711.8	5879.2	6054.7	6239.0	6433.2	6638.5	6856.3	7088.2	7336.3	7603.2	7891.9	30
31	5554.2	5714.5	5882.1	6057.7	6242.2	6436.6	6642.0	6860.0	7092.2	7340.5	7607.8	7896.9	31
32	5556.8	5717.2	5885.0	6060.7	6245.3	6439.9	6645.5	6863.8	7096.2	7344.9	7612.4	7901.9	32
33	5559.4	5720.0	5887.8	6063.7	6248.5	6443.3	6649.1	6867.7	7100.2	7349.2	7617.0	7907.0	33
34	5562.1	5722.7	5890.7	6066.7	6251.7	6446.6	6652.6	6871.3	7104.2	7353.5	7621.7	7912.0	34
35	5564.7	5725.4	5893.5	6069.7	6254.8	6449.9	6656.0	6875.0	7108.2	7357.8	7626.3	7917.1	35
36	5567.3	5728.1	5896.4	6072.7	6258.0	6453.3	6659.7	6878.8	7112.2	7362.0	7631.0	7922.1	36
37	5569.9	5730.9	5899.3	6075.7	6261.2	6456.6	6663.3	6882.6	7116.2	7366.4	7635.6	7927.2	37
38	5572.5	5733.7	5902.1	6078.7	6264.3	6459.9	6666.6	6886.3	7120.2	7370.7	7640.3	7932.3	38
39	5575.2	5736.4	5905.0	6081.8	6267.5	6463.3	6670.4	6890.1	7124.3	7375.1	7645.0	7937.3	39
40	5577.8	5739.2	5907.9	6084.8	6270.7	6466.6	6673.9	6893.9	7128.3	7379.4	7649.7	7942.4	40
41	5580.4	5741.9	5910.8	6087.8	6273.9	6470.0	6677.5	6897.7	7132.4	7383.7	7654.3	7947.5	41
42	5583.1	5744.7	5913.7	6090.8	6277.0	6473.3	6681.0	6901.5	7136.4	7388.1	7659.0	7952.6	42
43	5585.7	5747.4	5916.5	6093.7	6280.2	6476.6	6684.6	6905.2	7140.5	7392.4	7663.7	7957.7	43
44	5588.3	5750.2	5919.4	6096.6	6283.4	6480.0	6688.2	6909.0	7144.5	7396.8	7668.4	7962.8	44
45	5591.0	5752.9	5922.3	6099.6	6286.6	6483.3	6691.9	6912.8	7148.6	7401.1	7673.1	7967.9	45
46	5593.6	5755.7	5925.2	6102.6	6289.8	6486.6	6695.5	6916.6	7152.7	7405.5	7677.9	7973.1	46
47	5596.3	5758.5	5928.1	6105.6	6293.0	6490.0	6699.2	6920.5	7156.6	7409.9	7682.6	7978.2	47
48	5598.9	5761.2	5931.0	6108.9	6296.2	6493.3	6702.8	6924.3	7160.6	7414.3	7687.3	7983.4	48
49	5601.6	5764.0	5933.9	6112.1	6299.4	6497.0	6706.1	6928.1	7164.9	7418.6	7692.0	7988.5	49
50	5604.2	5766.8	5936.8	6115.1	6302.6	6500.4	6709.9	6931.9	7169.0	7423.0	7696.8	7993.7	50
51	5606.9	5769.5	5939.7	6118.2	6305.8	6503.8	6713.2	6935.7	7173.1	7427.4	7701.5	7998.8	51
52	5609.5	5772.3	5942.6	6121.2	6309.0	6507.2	6716.6	6939.6	7177.1	7431.8	7706.3	8004.0	52
53	5612.2	5775.1	5945.5	6124.3	6312.3	6510.6	6720.0	6943.4	7181.2	7436.3	7711.1	8009.2	53
54	5614.8	5777.9	5948.4	6127.3	6315.5	6514.0	6724.0	6947.2	7185.3	7440.6	7715.8	8014.4	54
55	5617.5	5780.6	5951.3	6130.4	6318.7	6517.4	6727.6	6951.1	7189.5	7445.0	7720.6	8019.6	55
56	5620.2	5783.4	5954.2	6133.4	6321.9	6520.8	6731.3	6955.0	7193.6	7449.5	7725.4	8024.8	56
57	5622.8	5786.2	5957.2	6136.5	6325.1	6524.2	6734.9	6958.8	7197.7	7453.9	7730.2	8030.0	57
58	5625.5	5789.0	5960.1	6139.6	6328.4	6527.6	6738.5	6962.6	7201.8	7458.3	7735.0	8035.2	58
59	5628.1	5791.8	5963.0	6142.6	6331.6	6531.0	6742.1	6966.5	7205.9	7462.8	7739.8	8040.5	59
Minutes of Lat.	67°	68°	69°	70°	71°	72°	73°	74°	75°	76°	77°	78°	Minutes of Lat.

DEGREES OF LATITUDE.

MERIDIONAL PARTS.

Minutes of Lat.	DEGREES OF LATITUDE.											Minutes of Lat.
	79°	80°	81°	82°	83°	84°	85°	86°	87°	88°	89°	
0	8045.7	8375.2	8739.1	9145.5	9605.8	10136.9	10764.6	11532.5	12522.1	13916.4	16299.6	0
1	8050.9	8381.0	8745.5	9152.6	9614.0	10146.5	10776.1	11546.9	12541.3	13945.2	16357.3	1
2	8056.2	8386.7	8751.1	9159.9	9622.3	10156.1	10787.6	11561.3	12560.5	13974.2	16416.1	2
3	8061.5	8392.5	8758.3	9167.1	9630.5	10165.7	10799.2	11575.8	12579.9	14003.5	16475.9	3
4	8066.7	8398.3	8764.7	9174.3	9638.8	10175.4	10810.8	11590.3	12599.4	14033.0	16536.8	4
5	8072.0	8404.0	8771.2	9181.6	9647.1	10185.0	10822.5	11604.9	12619.0	14062.8	16598.7	5
6	8077.3	8409.9	8777.6	9188.8	9655.4	10194.8	10834.2	11619.6	12638.7	14092.8	16661.8	6
7	8082.6	8415.7	8784.1	9196.1	9663.7	10204.5	10845.9	11634.4	12658.5	14123.1	16726.0	7
8	8087.9	8421.6	8790.6	9203.4	9672.1	10214.3	10857.6	11649.2	12678.5	14153.7	16791.5	8
9	8093.2	8427.4	8797.1	9210.7	9680.5	10224.1	10869.5	11664.0	12698.5	14184.5	16858.3	9
10	8098.5	8433.3	8803.6	9218.1	9688.9	10233.9	10881.3	11678.9	12718.7	14215.6	16926.4	10
11	8103.8	8439.1	8810.1	9225.4	9697.3	10243.7	10893.2	11693.9	12739.0	14247.2	16995.5	11
12	8109.2	8445.0	8816.6	9232.8	9705.7	10253.6	10905.1	11709.0	12759.4	14278.7	17066.7	12
13	8114.5	8450.9	8823.2	9240.1	9714.2	10263.5	10917.1	11724.1	12779.9	14310.7	17139.1	13
14	8119.9	8456.8	8829.7	9247.5	9722.6	10273.5	10929.1	11739.3	12800.6	14343.0	17213.0	14
15	8125.2	8462.7	8836.3	9254.9	9731.1	10283.4	10941.2	11754.6	12821.4	14375.6	17288.6	15
16	8130.6	8468.6	8842.9	9262.4	9739.7	10293.3	10953.3	11769.9	12842.4	14408.5	17365.8	16
17	8135.9	8474.5	8849.5	9269.8	9748.2	10303.5	10965.4	11785.3	12863.3	14441.7	17444.9	17
18	8141.3	8480.4	8856.1	9277.3	9756.8	10313.5	10977.6	11800.7	12884.3	14475.2	17525.8	18
19	8146.7	8486.4	8862.7	9284.7	9765.3	10323.6	10989.8	11816.3	12905.7	14509.1	17608.6	19
20	8152.1	8492.3	8869.3	9292.2	9773.9	10333.7	11002.1	11831.9	12927.2	14543.3	17693.5	20
21	8157.5	8498.3	8876.0	9299.7	9782.6	10343.9	11014.4	11847.5	12948.7	14577.9	17780.5	21
22	8162.9	8504.2	8882.6	9307.2	9791.2	10354.0	11026.7	11863.3	12970.0	14612.8	17869.8	22
23	8168.4	8510.2	8889.3	9314.8	9799.9	10364.2	11039.1	11879.1	12992.3	14648.0	17961.5	23
24	8173.8	8516.2	8896.0	9322.3	9808.6	10374.5	11051.6	11895.0	13014.2	14683.7	18055.7	24
25	8179.2	8522.2	8902.7	9329.9	9817.3	10384.7	11064.1	11910.9	13036.6	14719.7	18152.5	25
26	8184.7	8528.2	8909.4	9337.5	9826.0	10395.0	11076.6	11927.0	13058.6	14756.6	18252.2	26
27	8190.1	8534.3	8916.1	9345.1	9834.8	10405.3	11089.2	11943.1	13081.1	14792.8	18354.8	27
28	8195.6	8540.3	8922.8	9352.7	9843.5	10415.7	11101.8	11959.3	13103.6	14830.0	18460.6	28
29	8201.1	8546.3	8929.6	9360.3	9852.3	10426.1	11114.5	11975.5	13126.3	14867.6	18569.8	29
30	8206.6	8552.4	8936.3	9368.0	9861.2	10436.5	11127.2	11991.9	13149.1	14905.6	18682.5	30
31	8212.1	8558.4	8943.1	9375.7	9870.0	10447.0	11140.0	12008.3	13172.1	14944.0	18799.0	31
32	8217.6	8564.5	8949.9	9383.4	9878.8	10457.4	11152.8	12024.8	13195.3	14982.8	18919.7	32
33	8223.1	8570.6	8956.7	9391.1	9887.8	10467.9	11165.7	12041.4	13218.6	15022.1	19044.7	33
34	8228.6	8576.7	8963.5	9398.8	9896.7	10478.5	11178.6	12058.0	13242.1	15061.9	19174.4	34
35	8234.1	8582.8	8970.3	9406.5	9905.6	10489.1	11191.6	12074.8	13265.7	15102.1	19309.3	35
36	8239.6	8588.9	8977.0	9414.3	9914.6	10499.7	11204.6	12091.6	13289.5	15142.8	19449.6	36
37	8245.1	8595.1	8984.4	9422.0	9923.6	10510.3	11217.6	12108.5	13313.5	15183.9	19595.9	37
38	8250.6	8601.2	8991.0	9429.8	9932.6	10521.0	11230.7	12125.5	13337.6	15225.6	19748.7	38
39	8256.1	8607.3	8997.7	9437.6	9941.6	10531.7	11243.9	12142.6	13361.9	15267.8	19908.7	39
40	8261.6	8613.4	9004.4	9445.5	9950.7	10542.4	11257.1	12159.7	13386.4	15310.5	20076.4	40
41	8267.1	8619.5	9011.1	9453.3	9959.7	10553.2	11270.4	12177.0	13411.0	15353.8	20252.7	41
42	8272.6	8625.6	9017.8	9461.2	9968.8	10564.0	11283.7	12194.3	13435.8	15397.6	20438.6	42
43	8278.1	8631.7	9024.5	9469.1	9978.0	10574.9	11297.0	12211.7	13460.9	15441.9	20635.1	43
44	8283.6	8637.8	9031.2	9477.0	9987.1	10585.8	11310.5	12229.2	13486.0	15486.9	20843.5	44
45	8289.1	8644.0	9037.9	9484.9	9996.3	10596.6	11323.9	12246.8	13511.4	15532.4	21065.4	45
46	8294.6	8650.1	9044.6	9492.8	10005.5	10607.6	11337.4	12264.5	13537.0	15578.5	21302.5	46
47	8300.1	8656.2	9051.3	9500.8	10014.7	10618.6	11351.0	12282.3	13562.7	15625.3	21557.3	47
48	8305.6	8662.3	9058.0	9508.7	10023.9	10629.6	11364.6	12300.1	13588.7	15672.7	21832.5	48
49	8311.1	8668.4	9064.7	9516.7	10033.2	10640.7	11378.3	12318.1	13614.8	15720.8	22131.6	49
50	8316.6	8674.5	9071.4	9524.7	10042.5	10651.7	11392.1	12336.1	13641.2	15769.6	22459.3	50
51	8322.1	8680.6	9078.1	9532.7	10051.8	10662.9	11405.8	12354.3	13667.7	15819.1	22821.5	51
52	8327.6	8686.7	9084.8	9540.8	10061.2	10674.0	11419.7	12372.5	13694.5	15869.2	23226.4	52
53	8333.1	8692.8	9091.5	9548.8	10070.6	10685.2	11433.6	12390.9	13721.5	15920.2	23685.4	53
54	8338.6	8698.9	9098.2	9556.9	10080.0	10696.5	11447.6	12409.3	13748.7	15971.9	24215.3	54
55	8344.1	8705.0	9104.9	9565.0	10089.4	10707.7	11461.6	12427.9	13776.1	16024.4	24842.1	55
56	8349.6	8711.1	9111.6	9573.1	10098.8	10719.0	11475.6	12446.5	13803.7	16077.7	25509.2	56
57	8355.1	8717.2	9118.3	9581.2	10108.3	10730.4	11489.8	12465.3	13831.5	16131.8	26258.2	57
58	8360.6	8723.3	9125.0	9589.4	10117.8	10741.7	11504.0	12484.1	13859.6	16186.8	27099.1	58
59	8366.1	8729.4	9131.7	9597.6	10127.3	10753.2	11518.2	12503.0	13887.9	16242.7	28037.0	59
Minutes of Lat.	79°	80°	81°	82°	83°	84°	85°	86°	87°	88°	89°	Minutes of Lat.
DEGREES OF LATITUDE.												

The Mean Right Ascensions and Declinations of 236 of the principal Fixed stars adapted to the beginning of the year 1824.

S. signifies south declination; all the rest are north.

Number.	Names of the stars.	Magnitude.	Right ascension	Annual variation.	Declination	Annual variation.	Bearing and true spherical distance of an adjacent brilliant star; very useful in deducing the Latitude from the Altitudes of two fixed stars.
1	β Cassiopeiæ	3	0. 0. 9	+3.00	58. 10. 47	+20.00	Markab, S. by W. ... 45. 32. 1
2	γ Pegasi†... Algenib	2	0. 4. 11	3.08	14. 12. 21	+20.20	Altaïr, W. $\frac{1}{2}$ S. 64. 18. 0
3	β Hydri	3	0. 15. 31	2.68	78. 15. 7 S.	-20.00	α Phœnicis, N. 34. 59. 4
4	α Phœnicis	2.3	0. 17. 34	2.99	43. 15. 12 S.	-20.00	Fomalh. N. W. $\frac{1}{2}$ W. 21. 51. 1
5	δ Andromedæ	3	0. 30. 9	3.00	29. 53. 0	+20.00	Alpheratz, W. by S. 6. 58. 7
6	α Cassiop. † Schedir	3	0. 30. 34	3.31	55. 34. 15	+19.80	Mirach, S. by E. ... 21. 30. 0
7	β Ceti. Deneb Kaitos	2	0. 35. 9	3.00	18. 57. 17 S.	-19.90	α Phœnicis, S. $\frac{1}{2}$ W. ... 24. 34. 4
8	γ Cassiopeiæ	3	0. 46. 19	3.50	59. 45. 43	+19.70	Mirach, S. $\frac{1}{2}$ E. 25. 10. 4
9	α UMin.† Alruccabah	2.3	0. 58. 1	14.74	88. 22. 12	+19.45	Schedir, S. $\frac{1}{2}$ W. ... 32. 48. 4
10	β Androm. Mirach	2	1. 0. 15	3.30	34. 41. 14	+19.60	Aldebaran, E. S. E. 49. 22. 3
11	δ Cassiopeiæ	3	1. 14. 27	3.80	59. 19. 2	+19.10	Mirach, S. $\frac{1}{2}$ W. ... 24. 44. 5
12	α Eridani. Achernar	1	1. 31. 9	2.25	58. 7. 59 S.	-18. 5	α Phœnic. N. W. $\frac{1}{2}$ N. 18. 46. 1
13	ϵ Cassiopeiæ	3	1. 41. 34	4.10	62. 47. 59	+18.20	Almaach, S. $\frac{1}{2}$ E. ... 21. 23. 4
14	ζ Ceti. Baten Kaitos	3	1. 43. 8	3.00	11. 12. 18 S.	-18.00	α Phœnic., S. S. W. $\frac{1}{2}$ W. 37. 1. 1
15	β Arietis	3	1. 45. 15	3.30	19. 56. 48	+18.00	α Arietis, N. E. 3. 52. 3
16	α Piscium	3	1. 53. 10	3.10	1. 54. 39	+17.70	α Arietis, N. $\frac{1}{2}$ E. 20. 44. 0
17	γ Androm. Almaach	2	1. 53. 22	3.60	41. 28. 53	+17.70	Aldebaran, S. E. $\frac{1}{2}$ E. 41. 22. 3
18	α Arietis†... Arietis	2	1. 57. 16	3.35	22. 37. 33	+17.40	Aldebaran, E. by S. 35. 32. 0
19	σ Ceti..... Mira..	2	2. 10. 9	3.00	3. 46. 32 S.	-17.00	Deneb Kait., SW. by W. 27. 43. 0
20	δ Ceti	3	2. 30. 10	3.10	0. 25. 43 S.	-16.40	α Arietis, N. by W. $\frac{1}{2}$ W. 24. 24. 0
21	ϵ Ceti	3	2. 31. 5	2.90	12. 37. 13 S.	-15.90	α Arietis, N. by W. $\frac{1}{2}$ W. 36. 12. 0
22	γ Ceti	3	2. 34. 10	3.10	2. 29. 35	+15.80	α Arietis, N. N. W. ... 22. 1. 1
23	γ Persei	3	2. 51. 36	4.20	52. 48. 33	+14.80	α Persei, S. E. 4. 47. 0
24	α Ceti†... Menkar..	2	2. 53. 5	3.12	3. 23. 41	+14.75	σ Arietis, N. W. by N. 23. 30. 0
25	β Persei.... Algol..	var	2. 56. 18	3.80	40. 16. 19	+14.60	Capella, E. by N. $\frac{1}{2}$ N. 23. 45. 0
26	α Fornacis Chemicæ	3	3. 4. 57	2.50	29. 41. 56 S.	-14.00	Rigel, N. E. $\frac{1}{2}$ E. ... 35. 27. 0
27	ζ Eridani	3	3. 7. 5	2.90	9. 28. 35 S.	-13.80	Rigel, E. 29. 23. 0
28	α Persei† Algenib..	2	3. 11. 48	4.20	49. 13. 36	+13.50	Capella, E. $\frac{1}{2}$ S. 19. 5. 0
29	ϵ Eridani	3	3. 25. 6	2.90	10. 3. 21 S.	-12.7	Rigel, E. $\frac{1}{2}$ N. 24. 58. 0
30	δ Persei	3	3. 30. 36	4.20	47. 13. 3	+12.30	α Persei, N. W. by W. 3. 43. 0
31	δ Eridani	3	3. 35. 5	2.90	10. 22. 4 S.	-12.00	Rigel, E. $\frac{1}{2}$ N. 22. 31. 0
32	η Pleiadum, Alcyone	3	3. 37. 21	3.50	23. 33. 18	+11.80	Aldebar., SE. by E. $\frac{1}{2}$ E. 13. 35. 0
33	ζ Persei	3	3. 43. 26	3.80	31. 21. 44	+11.40	Algol, N. W. $\frac{1}{2}$ W. ... 13. 2. 0
34	ϵ Persei	3	3. 46. 32	4.00	39. 29. 57	+11.20	Algol, W. 9. 39. 0
35	γ Eridani	3	3. 50. 4	2.80	14. 0. 43 S.	-10.90	Aldebar., N. by E. $\frac{1}{2}$ E. 31. 25. 0
36	σ Eridani	3	4. 3. 5	2.90	7. 18. 2 S.	-9.90	Aldebar., N. by E. $\frac{1}{2}$ E. 24. 6. 0
37	ϵ Tauri	3	4. 18. 19	3.50	18. 47. 0	+8.70	Aldebaran, S. E. $\frac{1}{2}$ E. 3. 11. 0
38	α Tauri†... Aldebar.	1	4. 25. 50	3.43	16. 8. 49	+7.95	Rigel, S. S. E. 26. 30. 0
39	β Eridani	3	4. 59. 8	3.00	5. 18. 54 S.	-5.90	Rigel, S. E. $\frac{1}{2}$ E. ... 3. 32. 0
40	α Aurigæ† Capella	1	5. 3. 42	4.41	45. 48. 27	+4.57	Procyon, S. E. by S. 51. 7. 0
40	α Aurigæ† Capella	1	5. 3. 42	4.41	45. 48. 27	+4.57	Aldebaran, S. by W. 30. 41. 0
41	β Orionis† Rigel..	1	5. 6. 5	2.88	8. 24. 40 S.	-4.92	Sirius, E. S. E. 23. 40. 0
42	β Tauri†	2	5. 15. 11	3.78	28. 26. 56	+3.83	Bellatrix, S. 22. 15. 0
43	η Orionis	3	5. 15. 9	3.00	2. 33. 53 S.	-3.90	Rigel, S. by W. 6. 15. 0
44	γ Orionis. Bellatrix	2	5. 15. 14	3.20	6. 10. 57	+3.90	Sirius, S. E. 30. 26. 0
45	β Leporis	3	5. 20. 59	2.60	20. 54. 18 S.	-3.50	Rigel, N. by W. ... 13. 0. 0
46	δ Orionis	2	5. 23. 10	3.00	0. 26. 10 S.	-3.40	Rigel, S. by W. ... 9. 2. 0
47	α Leporis	3	5. 25. 0	2.60	17. 57. 19 S.	-3.20	Rigel, N. by W. $\frac{1}{2}$ W. 10. 35. 0
48	ϵ Orionis	2	5. 27. 9	3.00	1. 19. 16 S.	-3.00	Rigel, S. S. W. 8. 49. 0
49	ζ Tauri	3	5. 27. 21	3.60	21. 1. 40	+3.00	Bellatrix, S. by W. 15. 7. 0

TABLE XLIV.

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Mean Right Ascensions and Declinations of the principal fixed Stars, continued.

S. signifies south declination; all the rest are north.

Names of the stars.	Magnitude.	Right ascension.	Annual variation.	Declination.	Annual variation.	Bearing and true spherical distance of an adjacent brilliant star; very useful in deducing the Latitude from the Altitudes of two fixed stars.	Annual variation in distance.
ζ Orionis.....	2	5.32. 9	+3.00	2. 2.32 S.	-2.60	Rigel, S. by W. $\frac{1}{2}$ W. 9. 5.25	-0.32
α Columbæ.....	2	5.32.50	2.20	34. 10.24 S.	-2.40	Sirius, N.E. $\frac{1}{2}$ N. 22.51.43	-1.77
χ Orionis.....	3	5.39. 4	2.80	9. 44.20 S.	-1.90	α Columbæ, S. $\frac{1}{2}$ W. 24.28.34	-0.01
β Columbæ.....	3	5.44.47	2.10	35.50.25 S.	-1.40	α Columbæ, N.W. 2.57.38	-0.41
α Orion.† Betelgeuse	1	5.45.39	3.25	7.21.57	+1.37	Procyon, E. $\frac{1}{2}$ S. 22.59.28	-0.66
β Aurigæ.....	2	5.46.42	4.40	44.55.12	+1.40	Capella, W.N.W. 7.35.57	+0.12
η Geminorum.....	3.4	6. 4.22	3.60	22.23. 3	-0.20	Pollux, E.N.E. 21.12.14	-0.35
μ Geminorum.....	3	6.12.22	3.60	22.35.57	-0.90	Pollux, E.N.E. 19.24.21	-0.28
ζ Canis Majoris.....	3	6.13.53	2.30	29.59.26 S.	+1.10	Sirius, N. by E. $\frac{1}{2}$ E. 14.32.26	-1.48
β Canis Majoris.....	2	6.15. 0	2.60	17.52.31 S.	+1.20	Procyon, N.E. 29.57.33	-0.79
α Arg. Nav. Canopus	1	6.20. 3	1.33	52.36. 6 S.	+1.70	Procyon, N. by E. $\frac{1}{2}$ E. 60. 8.18	-1.02
α Arg. Nav. Canopus	1	6.20. 3	1.33	52.36. 6 S.	+1.70	Sirius, N. $\frac{1}{2}$ E. 36.16.55	-1.22
γ Geminorum.....	3	6.27.19	3.50	16.32.38	-2.20	Pollux, N. E. by E. 19.31.14	-0.97
α Canis Maj. † Sirius	1	6.37.23	2.61	16.28.53 S.	+4.36	Procyon, N.E. by N. 25.41.57	+0.41
α Canis Maj. † Sirius	1	6.37.23	2.61	16.28.53 S.	+4.36	Capella, N. by W. $\frac{1}{2}$ W. 65.48. 0	+0.45
α Canis Majoris.....	3	6.52.53	2.30	28.44.16 S.	+4.40	Sirius, N. by W. 12.45.53	-1.18
ζ Geminorum.....	3	6.53.21	3.60	20.49.17	-4.50	Pollux, N.E. $\frac{1}{2}$ E. 12. 3.32	-0.89
γ Canis Majoris.....	3	6.56. 1	2.70	15.22.38 S.	+4.70	Sirius, W. by S. 4.29.20	+1.08
δ Canis Majoris.....	2	7. 0.55	2.40	26. 7. 7 S.	+5.20	Procyon, N. by E. $\frac{1}{2}$ E. 32.33.53	-0.91
δ Geminorum.....	3	7. 9.22	3.60	22.17.58	-5.80	Castor, N. by E. $\frac{1}{2}$ E. 10.26.11	-0.18
π Argûs Navis.....	3	7.10.47	2.10	36.47.13 S.	+6.00	Sirius, N.N.W. 21.36.35	-0.89
η Canis Majoris.....	2	7.16.55	2.37	28.57.51 S.	+6.50	Sirius, N.N.W. $\frac{1}{2}$ W. 15.26.24	-0.44
α Geminor. † Castor	2	7.23.21	3.85	32.15.53	-7.06	Procyon, S. $\frac{1}{2}$ E. 26.38.33	+0.90
α Can. Mi. † Procyon	1	7.30. 5	3.15	5.40. 7	-8.54	Pollux, N. 22.47.54	+0.90
α Can. Mi. † Procyon	1	7.30. 5	3.15	5.40. 7	-8.54	Arcturus, E. by N. 96.48.15	+0.06
χ Arg. Nav. Markeb	3	7.31.55	2.40	26.25.13 S.	+7.70	Sirius, N.W. $\frac{1}{2}$ W. 16. 5.47	-0.67
β Gemin. † Pollux	2	7.34.32	3.69	28.26.33	-8.00	Capella, N.W. by W. 34.16. 9	-0.60
ζ Argûs Navis.....	3	7.41.57	2.50	24.25.18 S.	+8.50	Sirius, N.W. by W. 17. 3.40	-0.02
ζ Argûs Navis.....	2	7.57.25	2.11	39.30.36 S.	+9.70	Sirius, N. W. by N. 28.52.38	-0.46
γ Argûs Navis.....	2	8. 4. 6	1.85	46.49.10 S.	+10.30	Canopus, W. by S. $\frac{1}{2}$ S. 17.40.19	+0.03
ζ Argûs Navis.....	2.3	8.18.54	1.25	58.56.51 S.	+11.40	Canopus, W. N. W. 17.41.44	+0.05
δ Argûs Navis.....	2.3	8.39.52	1.66	54. 3.48 S.	+12.80	Canopus, W. $\frac{1}{2}$ N. 20.42.40	+0.05
π Ursæ Majoris.....	3	8.47. 9	4.23	48.43.49	-13.20	Dubhe, N.E. $\frac{1}{2}$ E. 22. 9.56	-0.24
α Cancri... Acubens.	3.4	8.49.15	3.30	12.32. 9	-13.30	Procyon, W. by S. 20.41.59	+1.10
λ Argûs Navis.....	2.3	9. 1.31	2.21	42.43.33 S.	+14.20	Canopus, W. by S. $\frac{1}{2}$ S. 28.29. 0	+0.09
β Arg. Nav. Maia Pla.	1.2	9.11.17	0.75	68.59.41 S.	+14.80	Canopus, N.W. $\frac{1}{2}$ W. 25.39.48	+0.13
β Arg. Nav. Maia Pla.	1.2	9.11.17	0.75	68.59.41 S.	+14.80	Sirius, N.N.W. $\frac{1}{2}$ W. 57.43.36	-0.68
χ Argûs Navis.....	2.3	9.16.42	1.86	54.15.37 S.	+15.10	Canopus, W. $\frac{1}{2}$ N. 25.55.55	+0.07
α Hydræ † Alphard	2	9.18.56	2.95	7.53.58 S.	+15.19	Sirius, W. by S. 40.19.12	+1.16
θ Ursæ Majoris.....	3	9.21. 9	4.21	53.29. 3	-15.30	Dubhe, N. E. $\frac{1}{2}$ E. 15. 4.45	+0.03
η Leonis.....	3	9.35.50	3.43	24.34.51	-16.10	Regulus, S.S.E. $\frac{1}{2}$ E. 12.58. 5	+0.03
μ Leonis.....	3	9.42.25	3.46	26.50. 1	-16.50	Regulus, S. by E. $\frac{1}{2}$ E. 14.32.19	-0.03
η Leonis.....	3.4	9.57.43	3.29	17.37. 9	-17.20	Regulus, S. 4.48.18	+0.06
α Leonis† *Regulus	1	9.59. 0	3.21	12.49.27	-17.33	Alphard, S.S.W. 22.59.22	-0.19
λ Ursæ Majoris.....	3	10. 6.24	3.70	43.47.27	-17.50	β Ursæ Maj., N. N. E. 15.15.37	-0.09
ζ Leonis.....	3	10. 7.18	3.40	24.17.31	-17.60	Regulus, S. $\frac{1}{2}$ W. 11.38. 4	+0.22
γ Leonis.....	2.3	10.10.15	3.30	20.43.56	-17.70	Regulus, S.S.W. 8.21.11	+0.14
μ Ursæ Majoris.....	3	10.11.23	3.60	42.22.55	-17.80	β Ursæ Maj. N. by E. $\frac{1}{2}$ E. 16.14.10	+0.17
α Leonis Minoris.....	3	10.28.17	3.40	32.53.25	-18.40	Regulus, S.S.W. 21. 9. 9	+0.10
θ Argûs Navis.....	2.3	10.36.53	2.11	63.28.26 S.	+18.70	Canopus, W. by N. $\frac{1}{2}$ N. 34. 1.19	-0.03
η Argûs Navis.....	2	10.38.15	2.30	58.45.45 S.	+18.80	Canopus, W. by N. 35.27. 5	+0.01
α Crateris... Alkes.	3.4	10.51. 8	3.00	17.21.44 S.	+19.10	Alphard, W.N.W. 24.22. 3	+0.75
β Ursæ Majoris.....	2	10.51.25	3.70	57.19.27	-19.10	Benetnash, E. by S. $\frac{1}{2}$ S. 25. 2.18	-0.12
α Ursæ Maj.† Dubhe	2	10.52.47	3.83	62.41.58	-19.30	Benetnash, S.E. by E. $\frac{1}{2}$ E. 25.42.27	-0.13

The Mean Right Ascensions and Declinations of the principal fixed Stars, co

S. signifies south declination; all the rest are north.

Number.	Names of the stars.	Magnitude.	Right ascension	Annual variation.	Declination	Annual variation.	Bearing and true spherical distance of an adjacent brilliant star; very useful in deducing the Latitude from the Altitudes of two fixed stars.
100	δ Leonis	3	11. 4. 14	+3. 20	21. 29. 27	-19. 40	Regulus, SW by W $\frac{1}{2}$ W. 17. 48.
101	θ Leonis	3	11. 5. 11	3. 10	16. 23. 34	-19. 40	Regulus, W. by S. 16. 23.
102	λ Draconis	3	11. 20. 25	3. 70	70. 18. 1	-19. 80	β Ursæ Maj. S. by W. 13. 20.
103	β Leonis + Denebola	2	11. 40. 5	3. 07	15. 33. 22	-20. 04	Regulus, W. $\frac{1}{2}$ S. 24. 38.
104	β Virginis +	3	11. 41. 32	3. 12	2. 45. 25	-20. 00	Regulus, W.N.W. 27. 17.
105	γ Ursæ Majoris +	2	11. 44. 32	3. 20	54. 40. 21	-20. 00	Arcturus, S.E. by S. 43. 51.
106	δ Centauri	2.3	11. 59. 16	3. 06	49. 44. 49 S.	+22. 00	α Crucis, S. by E. 12. 36.
107	δ Crucis	3	12. 5. 53	3. 11	57. 46. 38 S.	+22. 00	α Crucis, S. by E. $\frac{1}{2}$ E. 4. 32.
108	δ Ursæ Majoris ..	3	12. 7. 9	3. 00	58. 1. 46	-20. 00	Alioth, E. $\frac{1}{2}$ S. 5. 20.
109	γ Corvi	3	12. 7. 10	3. 10	16. 33. 42 S.	+20. 00	Spica, E.N.E. 17. 52.
110	α Crucis	1	12. 16. 54	3. 24	62. 7. 26 S.	+20. 00	Spica, N. by E. 52. 58.
110	α Crucis	1	12. 16. 54	3. 24	62. 7. 26 S.	+20. 00	Antares, N.E. $\frac{1}{2}$ E. 53. 28.
111	δ Corvi .. Algorab.	3	12. 21. 10	3. 10	15. 31. 48 S.	+20. 20	Spica, E.N.E. 14. 21.
112	γ Crucis	3	12. 21. 27	3. 24	56. 7. 22 S.	+20. 00	α Crucis, S. $\frac{1}{2}$ W. 6. 1.
113	β Corvi	3	12. 25. 11	3. 10	22. 25. 10 S.	+49. 90	Spica, N.E. 17. 12.
114	χ Draconis	3	12. 26. 0	2. 60	70. 45. 38	-19. 90	Alioth, S. $\frac{1}{2}$ E. 14. 0.
115	γ Centauri	2.3	12. 31. 53	3. 27	47. 59. 24 S.	+19. 90	α Crucis, S. by W. 14. 48.
116	γ Virginis	3	12. 33. 10	3. 00	0. 28. 55 S.	+19. 90	Spica, S.E. 14. 25.
117	β Crucis	2	12. 37. 32	3. 41	58. 43. 30 S.	+19. 70	Antares, N.E. by E. 50. 8.
118	ϵ Ursæ Maj. Alioth	2	12. 46. 2	2. 70	56. 55. 3	-19. 70	Arcturus, S. by E. $\frac{1}{2}$ E. 39. 47.
119	δ Virginis	3	12. 47. 9	3. 00	4. 21. 29	-19. 70	Spica, S.S.E. $\frac{1}{2}$ E. 16. 15.
120	α Cor Caroli	3	12. 47. 31	2. 85	39. 16. 18	-19. 60	Alioth, N. 17. 38.
121	ϵ Virg. Vindemiatrix	3	12. 53. 9	3. 00	11. 54. 28	-19. 50	Arcturus, E. N.E. 19. 39.
122	γ Hydræ	3	13. 9. 14	3. 20	22. 14. 17 S.	+19. 20	Spica, N. $\frac{1}{2}$ E. 12. 6.
123	ϵ Centauri	3	13. 10. 17	3. 40	35. 46. 57 S.	+19. 20	Spica, N. $\frac{1}{2}$ E. 25. 34.
124	α Virginis + * Spica	1	13. 15. 56	3. 14	10. 14. 19 S.	+18. 95	Antares, E. S. E. 45. 54.
124	α Virginis + * Spica	1	13. 15. 56	3. 14	10. 14. 19 S.	+18. 95	Zubenelg. E. 27. 28.
124	α Virginis + * Spica	1	13. 15. 56	3. 14	10. 14. 19 S.	+18. 95	Procyon, W. by N. 87. 32.
125	ζ Ursæ Maj. Mizar	2	13. 16. 55	2. 40	55. 20. 50	-19. 00	Arcturus, S. by E. 36. 31.
126	ζ Virginis	3	13. 25. 9	3. 00	0. 18. 26	-18. 70	Spica, S. by W. 10. 47.
127	ϵ Centauri	2.3	13. 28. 47	3. 71	52. 29. 33 S.	+18. 60	β Centauri, S.S.E. $\frac{1}{2}$ E. 7. 42.
128	γ Urs. Maj. + Benetn.	2	13. 40. 36	2. 38	50. 11. 43	-18. 20	Vega, E. by S. $\frac{1}{2}$ S. 51. 0.
129	ζ Centauri	3	13. 44. 37	3. 68	46. 24. 55 S.	+18. 00	β Centauri, S. $\frac{1}{2}$ E. 13. 8.
130	η Bootæ	3	13. 46. 5	2. 90	19. 17. 21	-18. 00	Arcturus, E. by N. 5. 8.
131	β Centauri	1.2	13. 51. 34	4. 11	59. 30. 57 S.	+17. 70	Antares, N.E. $\frac{1}{2}$ N. 41. 59.
132	α Draconis	3	13. 59. 56	1. 60	65. 13. 8	-17. 40	Arcturus, S. 45. 8.
133	α Bootæ + Arcturus	1	14. 7. 38	2. 73	20. 6. 11	-18. 99	Benetnach, N. by W. 30. 33.
133	α Bootæ + Arcturus	1	14. 7. 38	2. 73	20. 6. 11	-18. 99	Vega, E. by N. $\frac{1}{2}$ N. 59. 0.
134	γ Centauri	2.3	14. 24. 21	3. 75	41. 22. 35 S.	+16. 20	α Centauri, S. 13. 45.
135	γ Bootæ .. Seginus	3	14. 24. 55	2. 40	39. 4. 58	-16. 20	Arcturus, S. by W. 19. 20.
136	α Centauri	1.2	14. 28. 18	4. 45	60. 7. 4 S.	+16. 10	Antares, N.E. by N. 38. 59.
136	α Centauri	1.2	14. 28. 18	4. 45	60. 7. 4 S.	+16. 10	Spica, N. by W. $\frac{1}{2}$ W. 51. 40.
137	α Lupi	3	14. 30. 17	3. 92	46. 37. 24 S.	+15. 90	α Centauri, S. $\frac{1}{2}$ W. 13. 29.
138	ϵ Bootæ .. Mirac.	3	14. 37. 0	2. 60	27. 49. 22	-15. 60	Arcturus, S. W. 10. 13.
139	α 1 Lib. } + Zuben.	2.3	14. 40. 58	3. 29	15. 15. 27 S.	+15. 20	Spica, W. by N. $\frac{1}{2}$ N. 21. 19.
140	α 2 Lib. } + Zuben.	2.3	14. 41. 10	+3. 29	15. 18. 11 S.	+15. 20	Spica, W. by N. $\frac{1}{2}$ N. 21. 22.
141	β Ursæ Mi. + Kochab	3	14. 51. 19	-0. 32	74. 52. 30	-14. 70	Benetn., S.S.W. $\frac{1}{2}$ W. 25. 44.
142	β Bootæ	3	14. 54. 52	+2. 20	41. 5. 29	-14. 50	Arcturus, S.S.W. $\frac{1}{2}$ W. 23. 16.
143	β Libræ .. Zubenelg.	2.3	15. 7. 14	3. 20	8. 43. 37 S.	+13. 80	Spica, W. 27. 28.
144	δ Serpentis	3	15. 26. 5	2. 90	11. 8. 7	-12. 60	Arcturus, W. N.W. 20. 52.
145	α Cor. Bor. + Alphecca	2	15. 27. 14	2. 53	27. 18. 47	-12. 49	Arcturus, W. S. W. 19. 33.
146	α Serpentis + Unuk	2	15. 35. 36	2. 94	6. 59. 10	-11. 73	Arcturus, NW by W. 25. 1.
147	β Serpentis	3	15. 38. 4	2. 80	15. 58. 53	-11. 80	Arcturus, W. by N. 21. 52.
148	ϵ Serpentis	3	15. 42. 9	3. 00	5. 0. 51	-11. 50	Arcturus, N.W. by W. 27. 29.
149	γ Serpentis	3	15. 48. 1	2. 70	16. 14. 47	-12. 00	Arcturus, W. by N. 24. 7.

Mean Right Ascensions and Declinations of the principal fixed Stars, continued.

S. signifies south declination; all the rest are north.

Names of the stars.	Magnitude.	Right ascension.	Annual variation.	Declination.	Annual variation.	Bearing and true spherical distance of an adjacent brilliant star; very useful in deducing the Latitude from the Altitudes of two fixed stars.	Annual variation in distance.
α Scorpiotis	3	15. 48. 22	+3. 60	25. 35. 31 S.	+11. 10	Antares, E. $\frac{1}{2}$ S.	6. 49. 30 +0. 08
β Scorpiotis	3	15. 50. 20	3. 50	22. 6. 40 S.	+10. 90	Antares, S.E. by E. 7. 33. 14	+0. 27
γ Scorpiotis	2	15. 55. 19	3. 50	19. 18. 53 S.	+10. 50	[Spica, W. by N. ...	39. 28. 59 +0. 54
δ Scorpiotis	3	15. 58. 27	1. 10	59. 2. 4	-10. 20	Rastaben, S.E. by E. 17. 43. 16	+0. 35
ϵ Ophiuchi .. Jed.	3	16. 5. 11	3. 10	3. 13. 51 S.	+9. 70	Antares, S. $\frac{1}{2}$ E.	23. 1. 40 +0. 04
ζ Ophiuchi	3	16. 9. 11	3. 10	4. 15. 13 S.	+9. 40	Antares, S. $\frac{1}{2}$ E.	21. 53. 42 -1. 16
η Herculis	3	16. 14. 0	2. 60	19. 34. 23	-9. 10	Arcturus, West. ...	29. 47. 5 -0. 01
θ Scorp. \dagger α Antares	1	16. 18. 38	3. 66	26. 1. 53 S.	+8. 62	Arcturus, N.W. by N. 56. 1. 25	-0. 88
ι Scorp. \dagger α Antares	1	16. 18. 38	3. 66	26. 1. 53 S.	+8. 62	Zubenelg, N.W. ...	24. 13. 6 +0. 16
κ Scorp. \dagger α Antares	1	16. 18. 38	3. 66	26. 1. 53 S.	+8. 62	Fomalhaut, E. $\frac{1}{2}$ S. 82. 50. 50	+0. 30
λ Draconis	3	16. 21. 15	0. 80	61. 54. 54	-8. 40	Rastaben, S.E.	16. 7. 43 -0. 11
μ Herculis Rutilicus	3	16. 22. 59	2. 60	21. 52. 52	-8. 30	Arcturus, West. ...	31. 34. 45 +1. 72
ν Ophiuchi	3	16. 27. 15	3. 30	10. 12. 3 S.	+8. 00	Antares, S. $\frac{1}{2}$ W. ...	15. 57. 41 -0. 05
ξ Trianguli Australis	2.3	16. 30. 7	6. 21	68. 41. 13 S.	+7. 80	Antares, N. $\frac{1}{2}$ W. ...	42. 41. 25 +0. 11
ζ Herculis	3	16. 34. 53	2. 30	31. 55. 34	-7. 20	Ras Algethi, S. S. E. 18. 46. 56	-0. 10
η Scorpiotis	3	16. 38. 29	3. 90	33. 57. 36 S.	+7. 10	Antares, N.W. by N. 9. 0. 54	-0. 02
θ Scorpiotis	3	16. 39. 32	4. 00	37. 44. 11 S.	+7. 10	Antares, N.N.W. ...	12. 30. 42 -0. 03
ι Scorpiotis	3.4	16. 40. 32	4. 00	37. 42. 33 S.	+7. 10	Antares, N.N.W. ...	12. 33. 46 +0. 03
κ Scorpiotis	3	16. 42. 14	4. 21	41. 2. 32 S.	+6. 80	Antares, N. by W. $\frac{1}{2}$ W. 15. 48. 6	+0. 45
λ Herculis	3	16. 53. 53	2. 30	31. 11. 33	-5. 80	Ras Algethi, S. $\frac{1}{2}$ E. 16. 50. 56	-0. 26
μ Ophiuchi	2.3	17. 0. 19	3. 40	15. 29. 49 S.	+5. 20	Antares, S.W.	14. 13. 28 -0. 26
ν Herc. \dagger Ras Algethi	2.3	17. 6. 38	2. 73	14. 35. 55	-4. 48	Vega, N.E. $\frac{1}{2}$ N. ...	30. 22. 34 +0. 26
ξ Herculis	3	17. 7. 57	2. 50	25. 3. 24	-4. 60	Ras Algethi, S. $\frac{1}{2}$ W. 10. 27. 45	-0. 22
ζ Draconis	8	17. 8. 4	0. 14	65. 55. 53	-4. 50	Rastaben, S. by E. $\frac{1}{2}$ E. 15. 28. 31	+0. 07
η Ara	3	17. 18. 15	4. 62	49. 43. 20 S.	+3. 80	Antares, N.N.W. $\frac{1}{2}$ W. 26. 20. 21	+0. 11
θ Scorpiotis. Lesath	2.3	17. 21. 32	4. 00	36. 57. 52 S.	+3. 50	Antares, N.W. $\frac{1}{2}$ W. 17. 15. 28	-0. 55
ι Scorpiotis	3	17. 24. 41	4. 30	42. 52. 26 S.	+3. 20	Antares, N.W. $\frac{1}{2}$ N. 21. 34. 25	+0. 09
κ Ophi. \dagger Ras Alhag.	2	17. 26. 46	2. 77	12. 41. 46	-3. 10	Vega, N.E. by N. 29. 36. 12	-0. 57
λ Ophiuchi	3	17. 35. 9	3. 00	4. 39. 0	-2. 20	Vega, N.N.E.	36. 15. 56 +0. 22
μ Ophiuchi	3	17. 39. 9	3. 00	2. 47. 0	-2. 00	Vega, N. by E. $\frac{1}{2}$ E. 37. 44. 36	+0. 55
ν Dracon. \dagger Rastaben	2.3	17. 52. 31	1. 38	51. 30. 48	-0. 70	Vega, S.E. by S. ...	14. 32. 21 -0. 17
ξ Sagittarii	3.4	17. 53. 27	3. 80	29. 34. 35 S.	+0. 70	Antares, W. by N. 21. 13. 35	-0. 36
ζ Sagittarii	3.4	17. 54. 29	3. 90	30. 24. 45 S.	+0. 70	Antares, W. by N. 21. 31. 12	+0. 60
η Sagittarii	3	18. 9. 27	3. 80	29. 53. 35 S.	-0. 70	Antares, W. by N. 24. 42. 42	-0. 49
θ Sagittarii	2.3	18. 12. 12	3. 98	34. 27. 23 S.	-0. 90	Antares, W. by N. $\frac{1}{2}$ N. 25. 49. 49	-0. 05
ι Lyræ \dagger .. Vega ..	1	18. 30. 59	+2. 03	38. 37. 32	+3. 00	Deneb, E. by N. $\frac{1}{2}$ N. 23. 51. 41	-0. 32
κ Lyræ \dagger .. Vega ..	1	18. 30. 59	+2. 03	38. 37. 32	+3. 00	Antares, S.S.W. $\frac{1}{2}$ W. 71. 41. 16	+0. 42
λ Lyræ Minoris	3	18. 31. 20	-1. 90	86. 35. 16	+3. 40	Vega, South.	47. 57. 44 +0. 40
μ Lyræ	2.3	18. 43. 51	+2. 20	33. 10. 1	+3. 60	Vega, N.N.W. $\frac{1}{2}$ W. 6. 2. 51	+0. 30
ν Sagittarii	3	18. 44. 25	3. 70	26. 30. 16 S.	-3. 70	β Capricorni, E.N.E. 23. 6. 16	+0. 51
ξ Serpentis	3	18. 47. 9	3. 00	3. 58. 44	+4. 00	Vega, N. $\frac{1}{2}$ W.	34. 50. 29 +0. 41
ζ Lyræ	3	18. 48. 47	2. 10	36. 40. 51	+4. 10	Vega, N.W.	4. 1. 25 +0. 05
η Sagittarii	3	18. 51. 27	3. 80	30. 7. 19 S.	-4. 30	β Capricorni, N.E. by E. 23. 32. 33	+0. 45
ι Lyræ	3	18. 51. 51	2. 20	32. 27. 6	+4. 50	Vega, N.W. by N. 7. 29. 21	-0. 17
κ Aquile	3	18. 52. 1	2. 70	14. 50. 24	+4. 30	Altair, S.E. $\frac{1}{2}$ S. ...	13. 51. 41 +0. 53
λ Aquile	3	18. 57. 4	2. 80	13. 36. 37	+4. 80	Altair, S.E. $\frac{1}{2}$ S. ...	12. 13. 51 -0. 31
μ Sagittarii	3	18. 59. 22	3. 60	21. 17. 41 S.	-4. 90	β Capricorni, E.N.E. 18. 3. 51	-0. 05
ν Sagittarii	3.4	19. 11. 41	4. 19	40. 56. 3 S.	-6. 00	β Capricorni, N.E. by N. 28. 40. 49	+0. 02
ξ Draconis	3	19. 12. 4	0. 03	67. 21. 4	+6. 20	Vega, S. by W. ...	29. 17. 42 -0. 30
ζ Aquile	3	19. 16. 9	3. 00	2. 46. 0	+6. 40	Altair, N.E.	8. 35. 33 +0. 90
η Aquile	3.4	19. 20. 57	2. 50	24. 19. 3	+6. 90	Altair, S. by E. ...	16. 41. 49 -0. 24
ι Al. Albireo	3	19. 23. 55	2. 40	27. 35. 47	+7. 10	Altair, S. by E. ...	19. 39. 57 -0. 30
κ Al. \dagger	3	19. 37. 54	2. 85	10. 11. 32	+8. 38	Altair, S.S.E. $\frac{1}{2}$ E. 2. 4. 24	+0. 01

The Mean Right Ascensions and Declinations of the principal Fixed Stars, &c

S. signifies south declination ; all the rest are north.

Number.	Names of the stars.	Magnitude.	Right ascension	Annual variation.	Declination	Annual variation.	Bearing and true spherical distance of an adjacent brilliant star ; very useful in deducing the Latitude from the Altitudes of two fixed stars.
200	δ Cygni	3	19. 39. 42	+1.90	44. 42. 10	+ 8.30	Vega, S. W. by W. 14. 9.
201	α Vulpeculæ	2.3	19. 39. 57	2.50	26. 53. 5	+ 8.40	Altair, S. 18. 28.
202	α Aquilæ†. *Altair	1.2	19. 42. 12	2.93	8. 24. 39	+ 9.06	Vega, N. N. W. ‡ W. 34. 11.
203	β Aquilæ†	3	19. 46. 40	2.95	5. 58. 30	+ 8.57	Altair, N. N. W. ‡ W. 2. 40.
204	θ Aquilæ	3	20. 2. 10	3.10	1. 20. 18 S.	-10.10	β Capricorni; S. ‡ E. 14. 10.
205	α 1 Capricorni† ..	3	20. 7. 53	3.33	13. 2. 38 S.	-10.80	α Pavonis, S. 44. 15.
206	α 2 Capricorni†...	3	20. 8. 17	3.33	13. 4. 54 S.	-10.80	α Pavonis, S. 44. 12.
207	β Capricorni	3	20. 11. 17	3.40	15. 19. 52 S.	-10.70	α Pavonis, S. 41. 57.
208	α Pavonis	1.2	20. 11. 39	4.84	57. 17. 19 S.	-10.70	β Capricorni, N. 41. 57.
209	γ Cygni	3	20. 15. 51	2.20	39. 41. 52	+11.10	Deneb, N. E. ‡ N. ... 6. 8. 5
210	ε Delphini	3	20. 25. 5	2.90	10. 42. 44	+11.70	Altair, W. by S. ... 10. 49.
211	β Delphini	3	20. 29. 4	2.80	13. 58. 44	+12.10	Altair, W. S. W. 12. 45. 5
212	α Delphini	3	20. 33. 4	2.80	15. 17. 43	+12.20	Altair, W. S. W. 14. 12. 5
213	δ Delphini	3	20. 35. 4	2.80	14. 27. 0	+12.50	Altair, W. S. W. 14. 17.
214	α Cygni†...Deneb.	1.2	20. 35. 26	2.04	44. 39. 21	+12.63	Altair, S. S. W. 38. 2. 1
215	γ Delphini	3	20. 38. 4	2.80	15. 29. 53	+12.70	Altair, W. S. W. 15. 22. 5
216	ε Cygni	3	20. 38. 54	2.40	33. 18. 22	+12.70	Deneb, N. 11. 22. 11
217	ζ Cygni	3	21. 4. 59	2.60	29. 30. 36	+14.40	Deneb, N. by W. ‡ W. 16. 14. 4
218	α Cephei† Alderain.	3	21. 14. 22	1.42	61. 50. 33	+14.90	Deneb, S. by W. ‡ W. 18. 6. 15
219	β Aquarii	3	21. 22. 14	3.20	6. 20. 28 S.	-15.40	Fomalhaut, S. E. by S. 31. 28. 3
220	β Cephei†	3	21. 26. 21	0.81	69. 47. 23	+15.70	Deneb, S. by W. ‡ W. 25. 25. 12
221	γ Capricorni	3	21. 30. 15	3.30	17. 27. 10 S.	-15.80	Fomalhaut, S. E. ‡ E. 21. 59. 11
222	ε Pegasi.... Enif..	2.3	21. 35. 5	2.90	9. 4. 22	+16.10	Markab, E. by N. ‡ N. 20. 28. 4
223	δ Capricorni	3	21. 37. 16	3.31	16. 54. 59 S.	-16.20	Fomalhaut, S. E. ... 21. 5. 38
224	α Aquarii†	3	21. 56. 45	3.09	1. 10. 12 S.	-17.37	Fomalhaut, S. S. E. 31. 47. 15
225	α Gruis	2	21. 57. 5	3.85	47. 48. 15 S.	-17.40	α Phœnicis, E. ‡ N. ... 26. 3. 30
226	ζ Cephei	3	22. 4. 47	2.00	57. 20. 21	+17.50	β Peg. or Sch., S. by E ‡ E. 31. 30. 0
227	γ Aquarii	3	22. 12. 10	3.10	2. 16. 20 S.	-17.80	Fomalhaut, S. by E ‡ E. 29. 31. 5
228	β Piscis Australis ..	3	22. 21. 19	3.40	33. 14. 28 S.	-18.10	Fomalhaut, N. E. ‡ E. 6. 14. 54
229	ε Piscis Australis ..	3	22. 31. 18	3.40	27. 57. 33 S.	-18.20	Fomalh., S. E. by E. ‡ E. 4. 27. 11
230	ζ Pegasi	3	22. 33. 9	3.00	9. 55. 2	+18.60	Markab, N. E. by E. 7. 4. 29
231	δ Aquarii, Scheat..	3	22. 45. 14	3.20	16. 45. 16 S.	-18.90	Fomalhaut, S. 13. 48. 42
232	α Pis. Aust.† *Fomal.	1	22. 47. 54	3.34	30. 33. 10 S.	-19.10	Achernar, S. E. ‡ S. 39. 2. 13
232	α Pis. Aust.† *Fomal.	1	22. 47. 54	3.34	30. 33. 10 S.	-19.10	Vega, N. W. ‡ N. ... 91. 25. 21
233	β Pegasi... Scheat..	2	22. 55. 5	2.90	27. 7. 35	+19.20	Altair, W. S. W. ... 49. 12. 35
234	α Pegasi† *Markab.	2	22. 56. 0	2.98	14. 15. 39	+19.43	Fomalhaut, S. 44. 51. 31
235	γ Cephei	3	23. 31. 54	2.40	76. 38. 53	+19.90	Alpheratz, S. ‡ E. ... 48. 38. 36
236	α Androm.† Alpher.	2	23. 59. 19	3.08	28. 7. 7	+19.99	α Arietis, E. by S. ... 27. 7. 50

Names of the Greek Characters made use of in this work.

α Alpha.
β Beta.
γ Gamma.
δ Delta.
ε Epsilon
ζ Zeta

η Eta.
θ Theta.
ι Iota.
κ Kappa.
λ Lambda.
μ Mu.

ν Nu.
ξ Xi.
ο O micron.
π Pi.
ρ Rho.
σ Sigma.

τ Tan.
υ Upsilon.
φ Phi.
χ Chi.
ψ Psi.
ω O mega.

Note.—For the method of tracing out and readily knowing any fixed star in the firmament the reader is referred to the New Celestial Planisphere ; to the description and use of that Planisphere to the Code of Practical Directions for knowing the fixed stars and Planets ; which are contained in pages 26 and 85 of "The Young Navigator's Guide to the Sidereal and Planetary parts of N Astronomy."

TABLE XLV.

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Acceleration of the fixed Stars;— Or to reduce Sidereal to mean Time.

Sid. days	Acceleration in Mean Time.	Sid. hrs.	Accel. in Mean Time.	Sid. Min.	Accel. in Mean Time.	Sid. Min.	Accel. in Mean Time.	Sid. Sec.	Accel. in Mean Time.	Sid. Sec.	Accel. in Mean Time.
	<i>h. m. s.</i>		<i>m. s.</i>		<i>m. s.</i>		<i>m. s.</i>		<i>m. s.</i>		<i>m. s.</i>
1	0. 3. 55. 91	1	0. 9. 83	1	0. 0. 16	31	0. 5. 08	1	0. 0. 00	31	0. 0. 08
2	0. 7. 51. 82	2	0. 19. 66	2	0. 0. 33	32	0. 5. 24	2	0. 0. 01	32	0. 0. 09
3	0. 11. 47. 72	3	0. 29. 49	3	0. 0. 49	33	0. 5. 41	3	0. 0. 01	33	0. 0. 09
4	0. 15. 43. 63	4	0. 39. 32	4	0. 0. 65	34	0. 5. 57	4	0. 0. 01	34	0. 0. 09
5	0. 19. 39. 54	5	0. 49. 15	5	0. 0. 82	35	0. 5. 73	5	0. 0. 01	35	0. 0. 10
6	0. 23. 35. 45	6	0. 58. 98	6	0. 0. 98	36	0. 5. 90	6	0. 0. 02	36	0. 0. 10
7	0. 27. 31. 36	7	1. 8. 81	7	0. 1. 15	37	0. 6. 06	7	0. 0. 02	37	0. 0. 10
8	0. 31. 27. 26	8	1. 18. 64	8	0. 1. 31	38	0. 6. 22	8	0. 0. 02	38	0. 0. 10
9	0. 35. 23. 17	9	1. 28. 46	9	0. 1. 47	39	0. 6. 39	9	0. 0. 02	39	0. 0. 11
10	0. 39. 19. 08	10	1. 38. 29	10	0. 1. 64	40	0. 6. 55	10	0. 0. 03	40	0. 0. 11
11	0. 43. 14. 99	11	1. 48. 12	11	0. 1. 80	41	0. 6. 72	11	0. 0. 03	41	0. 0. 11
12	0. 47. 10. 90	12	1. 57. 95	12	0. 1. 97	42	0. 6. 88	12	0. 0. 03	42	0. 0. 11
13	0. 51. 6. 80	13	2. 7. 78	13	0. 2. 13	43	0. 7. 04	13	0. 0. 04	43	0. 0. 12
14	0. 55. 2. 71	14	2. 17. 61	14	0. 2. 29	44	0. 7. 21	14	0. 0. 04	44	0. 0. 12
15	0. 58. 58. 62	15	2. 27. 44	15	0. 2. 46	45	0. 7. 37	15	0. 0. 04	45	0. 0. 12
16	1. 2. 54. 53	16	2. 37. 27	16	0. 2. 62	46	0. 7. 54	16	0. 0. 04	46	0. 0. 13
17	1. 6. 50. 44	17	2. 47. 10	17	0. 2. 78	47	0. 7. 70	17	0. 0. 05	47	0. 0. 13
18	1. 10. 46. 34	18	2. 56. 93	18	0. 2. 95	48	0. 7. 86	18	0. 0. 05	48	0. 0. 13
19	1. 14. 42. 25	19	3. 6. 76	19	0. 3. 11	49	0. 8. 03	19	0. 0. 05	49	0. 0. 13
20	1. 18. 38. 16	20	3. 16. 59	20	0. 3. 28	50	0. 8. 19	20	0. 0. 05	50	0. 0. 14
21	1. 22. 34. 07	21	3. 26. 42	21	0. 3. 44	51	0. 8. 35	21	0. 0. 06	51	0. 0. 14
22	1. 26. 29. 98	22	3. 36. 25	22	0. 3. 60	52	0. 8. 52	22	0. 0. 06	52	0. 0. 14
23	1. 30. 25. 88	23	3. 46. 08	23	0. 3. 77	53	0. 8. 68	23	0. 0. 06	53	0. 0. 14
24	1. 34. 21. 79	24	3. 55. 91	24	0. 3. 93	54	0. 8. 85	24	0. 0. 07	54	0. 0. 15
25	1. 38. 17. 70	25	4. 5. 74	25	0. 4. 10	55	0. 9. 01	25	0. 0. 07	55	0. 0. 15
26	1. 42. 13. 61	26	4. 15. 57	26	0. 4. 26	56	0. 9. 17	26	0. 0. 07	56	0. 0. 15
27	1. 46. 9. 52	27	4. 25. 40	27	0. 4. 42	57	0. 9. 34	27	0. 0. 07	57	0. 0. 16
28	1. 50. 5. 42	28	4. 35. 22	28	0. 4. 59	58	0. 9. 50	28	0. 0. 08	58	0. 0. 16
29	1. 54. 1. 33	29	4. 45. 05	29	0. 4. 75	59	0. 9. 67	29	0. 0. 08	59	0. 0. 16
30	1. 57. 57. 24	30	4. 54. 88	30	0. 4. 91	60	0. 9. 83	30	0. 0. 08	60	0. 0. 16

TABLE XLVI.

To reduce mean Solar Time to Sidereal Time.

Sol. days	Sidereal Time.	Sol. hrs.	Sidereal Time.	Sol. Min.	Sidereal Time.	Sol. Min.	Sidereal Time.	Sol. Sec.	Sidereal Time; Sec.	Sol. Sec.	Sidereal Time.
	<i>h. m. s.</i>		<i>m. s.</i>		<i>m. s.</i>		<i>m. s.</i>		<i>h. m. s.</i>		<i>m. s.</i>
1	0. 3. 56. 55	1	0. 9. 86	1	0. 0. 16	31	0. 5. 09	1	0. 0. 00	31	0. 0. 08
2	0. 7. 53. 11	2	0. 19. 71	2	0. 0. 33	32	0. 5. 26	2	0. 0. 01	32	0. 0. 09
3	0. 11. 49. 66	3	0. 29. 57	3	0. 0. 49	33	0. 5. 42	3	0. 0. 01	33	0. 0. 09
4	0. 15. 46. 22	4	0. 39. 43	4	0. 0. 66	34	0. 5. 59	4	0. 0. 01	34	0. 0. 09
5	0. 19. 42. 77	5	0. 49. 28	5	0. 0. 82	35	0. 5. 75	5	0. 0. 01	35	0. 0. 10
6	0. 23. 39. 33	6	0. 59. 14	6	0. 0. 99	36	0. 5. 91	6	0. 0. 02	36	0. 0. 10
7	0. 27. 35. 88	7	1. 8. 99	7	0. 1. 15	37	0. 6. 08	7	0. 0. 02	37	0. 0. 10
8	0. 31. 32. 44	8	1. 18. 85	8	0. 1. 31	38	0. 6. 24	8	0. 0. 02	38	0. 0. 10
9	0. 35. 28. 99	9	1. 28. 71	9	0. 1. 48	39	0. 6. 41	9	0. 0. 02	39	0. 0. 11
10	0. 39. 25. 55	10	1. 38. 56	10	0. 1. 64	40	0. 6. 57	10	0. 0. 03	40	0. 0. 11
11	0. 43. 22. 10	11	1. 48. 42	11	0. 1. 81	41	0. 6. 74	11	0. 0. 03	41	0. 0. 11
12	0. 47. 18. 66	12	1. 58. 28	12	0. 1. 97	42	0. 6. 90	12	0. 0. 03	42	0. 0. 11
13	0. 51. 15. 21	13	2. 8. 13	13	0. 2. 14	43	0. 7. 06	13	0. 0. 04	43	0. 0. 12
14	0. 55. 11. 77	14	2. 17. 99	14	0. 2. 30	44	0. 7. 23	14	0. 0. 04	44	0. 0. 12
15	0. 59. 8. 32	15	2. 27. 85	15	0. 2. 46	45	0. 7. 39	15	0. 0. 04	45	0. 0. 12
16	1. 3. 4. 88	16	2. 37. 70	16	0. 2. 63	46	0. 7. 56	16	0. 0. 04	46	0. 0. 13
17	1. 7. 1. 43	17	2. 47. 56	17	0. 2. 79	47	0. 7. 72	17	0. 0. 05	47	0. 0. 13
18	1. 10. 57. 99	18	2. 57. 42	18	0. 2. 96	48	0. 7. 88	18	0. 0. 05	48	0. 0. 13
19	1. 14. 54. 54	19	3. 7. 27	19	0. 3. 12	49	0. 8. 05	19	0. 0. 05	49	0. 0. 13
20	1. 18. 51. 10	20	3. 17. 13	20	0. 3. 29	50	0. 8. 21	20	0. 0. 05	50	0. 0. 14
21	1. 22. 47. 65	21	3. 26. 98	21	0. 3. 45	51	0. 8. 38	21	0. 0. 06	51	0. 0. 14
22	1. 26. 44. 21	22	3. 36. 84	22	0. 3. 61	52	0. 8. 54	22	0. 0. 06	52	0. 0. 14
23	1. 30. 40. 76	23	3. 46. 70	23	0. 3. 78	53	0. 8. 71	23	0. 0. 06	53	0. 0. 15
24	1. 34. 37. 32	24	3. 56. 55	24	0. 3. 94	54	0. 8. 87	24	0. 0. 07	54	0. 0. 15
25	1. 38. 33. 87	25	4. 6. 41	25	0. 4. 11	55	0. 9. 03	25	0. 0. 07	55	0. 0. 15
26	1. 42. 30. 43	26	4. 16. 27	26	0. 4. 27	56	0. 9. 20	26	0. 0. 07	56	0. 0. 15
27	1. 46. 26. 98	27	4. 26. 12	27	0. 4. 44	57	0. 9. 36	27	0. 0. 07	57	0. 0. 16
28	1. 50. 23. 54	28	4. 35. 98	28	0. 4. 60	58	0. 9. 53	28	0. 0. 08	58	0. 0. 16
29	1. 54. 20. 09	29	4. 45. 83	29	0. 4. 76	59	0. 9. 69	29	0. 0. 08	59	0. 0. 16
30	1. 58. 16. 65	30	4. 55. 69	30	0. 4. 93	60	0. 9. 86	30	0. 0. 08	60	0. 0. 16

Declination of the object, of the same name as the Latitude.														Lat.
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
0.0	30.0	14.29	9.37	7.12	5.46	4.49	4.8	3.38	3.14	2.55	2.40	2.28	1	
0.0	90.0	30.1	19.30	14.31	11.36	9.40	8.18	7.17	6.29	5.52	5.21	4.55	2	
0.0	41.49	48.37	30.3	22.5	17.32	14.35	12.30	10.57	9.45	8.48	8.2	7.24	3	
0.0	30.1	90.0	41.52	30.5	23.41	19.36	16.45	14.40	13.3	11.46	10.44	9.53	4	
0.0	23.36	53.10	56.30	38.46	30.8	24.47	21.7	18.26	16.23	14.46	13.27	12.22	5	
0.0	19.30	41.52	90.0	48.40	40.9	30.11	25.30	22.17	19.46	17.48	16.12	14.53	6	
0.0	16.38	34.55	59.4	61.7	44.34	35.53	30.15	26.14	23.14	20.52	18.59	17.26	7	
0.0	14.31	30.5	48.41	60.0	53.16	42.1	35.7	30.20	26.46	24.1	21.48	20.1	8	
0.0	12.23	26.29	41.56	62.50	64.16	48.48	40.17	34.35	30.25	27.13	24.41	22.37	9	
0.0	11.38	23.41	37.0	53.17	60.0	56.38	45.52	39.3	34.11	30.30	27.37	25.16	10	
0.0	10.32	21.27	33.13	46.50	65.31	69.36	52.4	43.48	38.8	33.55	30.47	27.59	11	
0.0	9.40	19.36	30.11	42.2	56.39	67.0	59.15	48.58	42.17	37.26	33.42	30.44	12	
0.0	8.55	18.4	27.41	38.13	50.32	67.33	68.25	54.42	46.43	41.8	30.54	33.35	13	
0.0	8.18	16.45	25.36	35.7	45.53	59.15	90.0	61.22	51.31	45.1	40.13	36.30	14	
0.0	7.45	15.38	23.49	32.32	42.8	53.27	69.11	69.53	56.53	49.11	43.43	39.31	15	
0.0	7.16	14.40	22.17	30.20	39.4	48.59	61.23	90.0	63.6	50.12	47.22	42.39	16	
0.0	6.51	13.48	20.57	28.26	36.26	45.20	55.50	70.31	71.7	58.44	51.18	45.57	17	
0.0	6.29	13.3	19.46	26.46	34.11	42.17	51.32	63.8	90.0	64.37	55.34	49.26	18	
0.0	6.9	12.22	18.44	25.18	32.14	39.41	48.0	57.51	71.39	72.9	60.21	53.10	19	
0.0	5.51	11.46	17.48	24.1	30.31	37.27	45.2	53.43	64.40	90.0	65.54	57.13	20	
0.0	5.35	11.13	16.57	22.51	28.59	35.28	42.28	50.17	59.34	72.37	73.4	61.46	21	
0.0	5.21	10.44	16.12	21.49	27.37	33.43	40.14	47.22	55.35	65.59	90.0	67.5	22	
0.0	5.7	10.17	15.31	20.52	26.23	32.9	38.15	44.52	52.16	61.5	73.29	73.52	23	
0.0	4.55	9.53	14.53	20.1	25.17	30.45	36.30	42.40	49.27	57.15	67.0	90.0	24	
0.0	4.44	9.30	14.19	19.14	24.16	29.28	34.55	40.43	46.59	54.2	62.25	74.14	25	
0.0	4.34	9.9	13.48	18.31	23.21	28.19	33.30	38.58	44.50	51.18	58.46	68.7	26	
0.0	4.25	8.50	13.19	17.51	22.29	27.15	32.12	37.23	42.54	48.53	55.36	63.37	27	
0.0	4.16	8.33	12.52	17.15	21.43	26.17	31.1	35.57	41.10	46.47	52.57	60.3	28	
0.0	4													

Amplitudes of a celestial object, reckoned from the true East, or West Point of the Horizon.

Lat.	DECLINATION.																		Lat.
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15.30		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lat.	DECLINATION.																		Lat.
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15.30		

DECLINATION.

17	17.30	18	18.30	19	19.30	20	20.30	21	21.30	22	22.30	23	23.30	Lat
17.0	17.30	18.0	18.30	19.0	19.30	20.0	20.30	21.0	21.30	22.0	22.30	23.0	23.30	0
17.1	17.31	18.1	18.31	19.1	19.31	20.1	20.31	21.1	21.31	22.1	22.31	23.1	23.31	1
17.2	17.32	18.2	18.32	19.2	19.32	20.2	20.32	21.2	21.32	22.2	22.32	23.2	23.32	2
17.3	17.33	18.3	18.33	19.3	19.33	20.3	20.33	21.3	21.33	22.3	22.33	23.3	23.33	3
17.4	17.34	18.4	18.34	19.4	19.35	20.4	20.35	21.4	21.35	22.4	22.35	23.4	23.35	4
17.5	17.35	18.5	18.35	19.5	19.36	20.5	20.36	21.5	21.36	22.5	22.36	23.5	23.36	5
17.6	17.36	18.6	18.36	19.6	19.37	20.6	20.37	21.6	21.37	22.6	22.37	23.6	23.37	6
17.7	17.37	18.7	18.37	19.7	19.38	20.7	20.38	21.7	21.38	22.7	22.38	23.7	23.38	7
17.8	17.38	18.8	18.38	19.8	19.39	20.8	20.39	21.8	21.39	22.8	22.39	23.8	23.39	8
17.9	17.39	18.9	18.39	19.9	19.40	20.9	20.40	21.9	21.40	22.9	22.40	23.9	23.40	9
17.10	17.40	18.10	18.40	19.10	19.41	20.10	20.41	21.10	21.41	22.10	22.41	23.10	23.41	10
17.11	17.41	18.11	18.41	19.11	19.42	20.11	20.42	21.11	21.42	22.11	22.42	23.11	23.42	11
17.12	17.42	18.12	18.42	19.12	19.43	20.12	20.43	21.12	21.43	22.12	22.43	23.12	23.43	12
17.13	17.43	18.13	18.43	19.13	19.44	20.13	20.44	21.13	21.44	22.13	22.44	23.13	23.44	13
17.14	17.44	18.14	18.44	19.14	19.45	20.14	20.45	21.14	21.45	22.14	22.45	23.14	23.45	14
17.15	17.45	18.15	18.45	19.15	19.46	20.15	20.46	21.15	21.46	22.15	22.46	23.15	23.46	15
17.16	17.46	18.16	18.46	19.16	19.47	20.16	20.47	21.16	21.47	22.16	22.47	23.16	23.47	16
17.17	17.47	18.17	18.47	19.17	19.48	20.17	20.48	21.17	21.48	22.17	22.48	23.17	23.48	17
17.18	17.48	18.18	18.48	19.18	19.49	20.18	20.49	21.18	21.49	22.18	22.49	23.18	23.49	18
17.19	17.49	18.19	18.49	19.19	19.50	20.19	20.50	21.19	21.50	22.19	22.50	23.19	23.50	19
17.20	17.50	18.20	18.50	19.20	19.51	20.20	20.51	21.20	21.51	22.20	22.51	23.20	23.51	20
17.21	17.51	18.21	18.51	19.21	19.52	20.21	20.52	21.21	21.52	22.21	22.52	23.21	23.52	21
17.22	17.52	18.22	18.52	19.22	19.53	20.22	20.53	21.22	21.53	22.22	22.53	23.22	23.53	22
17.23	17.53	18.23	18.53	19.23	19.54	20.23	20.54	21.23	21.54	22.23	22.54	23.23	23.54	23
17.24	17.54	18.24	18.54	19.24	19.55	20.24	20.55	21.24	21.55	22.24	22.55	23.24	23.55	24
17.25	17.55	18.25	18.55	19.25	19.56	20.25	20.56	21.25	21.56	22.25	22.56	23.25	23.56	25
17.26	17.56	18.26	18.56	19.26	19.57	20.26	20.57	21.26	21.57	22.26	22.57	23.26	23.57	26
17.27	17.57	18.27	18.57	19.27	19.58	20.27	20.58	21.27	21.58	22.27	22.58	23.27	23.58	27
17.28	17.58	18.28	18.58	19.28	19.59	20.28	20.59	21.28	21.59	22.28	22.59	23.28	23.59	28
17.29	17.59	18.29	18.59	19.29	19.60	20.29	20.60	21.29	21.60	22.29	22.60	23.29	23.60	29
17.30	17.60	18.30	18.60	19.30	19.61	20.30	20.61	21.30	21.61	22.30	22.61	23.30	23.61	30
17.31	17.61	18.31	18.61	19.31	19.62	20.31	20.62	21.31	21.62	22.31	22.62	23.31	23.62	31
17.32	17.62	18.32	18.62	19.32	19.63	20.32	20.63	21.32	21.63	22.32	22.63	23.32	23.63	32
17.33	17.63	18.33	18.63	19.33	19.64	20.33	20.64	21.33	21.64	22.33	22.64	23.33	23.64	33
17.34	17.64	18.34	18.64	19.34	19.65	20.34	20.65	21.34	21.65	22.34	22.65	23.34	23.65	34
17.35	17.65	18.35	18.65	19.35	19.66	20.35	20.66	21.35	21.66	22.35	22.66	23.35	23.66	35
17.36	17.66	18.36	18.66	19.36	19.67	20.36	20.67	21.36	21.67	22.36	22.67	23.36	23.67	36
17.37	17.67	18.37	18.67	19.37	19.68	20.37	20.68	21.37	21.68	22.37	22.68	23.37	23.68	37
17.38	17.68	18.38	18.68	19.38	19.69	20.38	20.69	21.38	21.69	22.38	22.69	23.38	23.69	38
17.39	17.69	18.39	18.69	19.39	19.70	20.39	20.70	21.39	21.70	22.39	22.70	23.39	23.70	39
17.40	17.70	18.40	18.70	19.40	19.71	20.40	20.71	21.40	21.71	22.40	22.71	23.40	23.71	40
17.41	17.71	18.41	18.71	19.41	19.72	20.41	20.72	21.41	21.72	22.41	22.72	23.41	23.72	41
17.42	17.72	18.42	18.72	19.42	19.73	20.42	20.73	21.42	21.73	22.42	22.73	23.42	23.73	42
17.43	17.73	18.43	18.73	19.43	19.74	20.43	20.74	21.43	21.74	22.43	22.74	23.43	23.74	43
17.44	17.74	18.44	18.74	19.44	19.75	20.44	20.75	21.44	21.75	22.44	22.75	23.44	23.75	44
17.45	17.75	18.45	18.75	19.45	19.76	20.45	20.76	21.45	21.76	22.45	22.76	23.45	23.76	45
17.46	17.76	18.46	18.76	19.46	19.77	20.46	20.77	21.46	21.77	22.46	22.77	23.46	23.77	46
17.47	17.77	18.47	18.77	19.47	19.78	20.47	20.78	21.47	21.78	22.47	22.78	23.47	23.78	47
17.48	17.78	18.48	18.78	19.48	19.79	20.48	20.79	21.48	21.79	22.48	22.79	23.48	23.79	48
17.49	17.79	18.49	18.79	19.49	19.80	20.49	20.80	21.49	21.80	22.49	22.80	23.49	23.80	49
17.50	17.80	18.50	18.80	19.50	19.81	20.50	20.81	21.50	21.81	22.50	22.81	23.50	23.81	50
17.51	17.81	18.51	18.81	19.51	19.82	20.51	20.82	21.51	21.82	22.51	22.82	23.51	23.82	51
17.52	17.82	18.52	18.82	19.52	19.83	20.52	20.83	21.52	21.83	22.52	22.83	23.52	23.83	52
17.53	17.83	18.53	18.83	19.53	19.84	20.53	20.84	21.53	21.84	22.53	22.84	23.53	23.84	53
17.54	17.84	18.54	18.84	19.54	19.85	20.54	20.85	21.54	21.85	22.54	22.85	23.54	23.85	54
17.55	17.85	18.55	18.85	19.55	19.86	20.55	20.86	21.55	21.86	22.55	22.86	23.55	23.86	55
17.56	17.86	18.56	18.86	19.56	19.87	20.56	20.87	21.56	21.87	22.56	22.87	23.56	23.87	56
17.57	17.87	18.57	18.87	19.57	19.88	20.57	20.88	21.57	21.88	22.57	22.88	23.57	23.88	57
17.58	17.88	18.58	18.88	19.58	19.89	20.58	20.89	21.58	21.89	22.58	22.89	23.58	23.89	58
17.59	17.89	18.59	18.89	19.59	19.90	20.59	20.90	21.59	21.90	22.59	22.90	23.59	23.90	59
17.60	17.90	18.60	18.90	19.60	19.91	20.60	20.91	21.60	21.91	22.60	22.91	23.60	23.91	60
18.0	18.00	19.00	19.00	20.00	20.00	21.00	21.00	22.00	22.00	23.00	23.00	24.00	24.00	0
18.1	18.01	19.01	19.01	20.01	20.01	21.01	21.01	22.01	22.01	23.01	23.01	24.01	24.01	1
18.2	18.02	19.02	19.02	20.02	20.02	21.02	21.02	22.02	22.02	23.02	23.02	24.02	24.02	2
18.3	18.03	19.03	19.03	20.03	20.03	21.03	21.03	22.03	22.03	23.03	23.03	24.03	24.03	3
18.4	18.04	19.04	19.04	20.04	20.04	21.04	21.04	22.04	22.04	23.04	23.04	24.04	24.04	4
18.5	18.05	19.05	19.05	20.05	20.05	21.05	21.05	22.05	22.05	23.05	23.05	24.05	24.05	5
18.6	18.06	19.06	19.06	20.06	20.06	21.06	21.06	22.06	22.06	23.06	23.06	24.06	24.06	6
18.7	18.07	19.07	19.07	20.07	20.07	21.07	21.07	22.07	22.07	23.07	23.07	24.07	24.07	7
18.8	18.08	19.08	19.08	20.08	20.08	21.08	21.08	22.08	22.08	23.08	23.08	24.08	24.08	8
18.9	18.09	19.09	19.09	20.09	20.09	21.09	21.09	22.09	22.09	23.09	23.09	24.09	24.09	9
18.10	18.10	19.10	19.10	20.10	20.10	21.10	21.10	22.10	22.10	23.10	23.10	24.10	24.10	10
18.11	18.11	19.11	19.11	20.11	20.11	21.11	21.11	22.11	22.11	23.11	23.11	24.11	24.11	11
18.12	18.12	19.12	19.12	20.12	20.12	21.12	21.12	22.12	22.12	23.12	23.12	24.12	24.12	12
18.13	18.13	19.13	19.13	20.13	20.13	21.13	21.13	22.13	22.13	23.13	23.13	24.13	24.13	13
18.14	18.14	19.14	19.14	20.14	20.14	21.14	21.14	22.14	22.14	23.14	23.14	24.14	24.14	14
18.15	18.15	19.15	19.15	20.15	20.15	21.15	21.15	22.15	22.15	23.15	23.15	24.15	24.15	15
18.16	18.16	19.16	19.16	20.16	20.16	21.16	21.16	22.16	22.16	23.16	23.16	24.16	24.16	16
18.17	18.17	19.17	19.17	20.17	20.17	21.17	21.17	22.17	22.17	23.17	23.17	24.17	24.17	17
18.18	18.18	19.18	19.18	20.18	20.18	21.18	21.18	22.18	22.18	23.18	23.18	24.18	24.18	18
18.19	18.19	19.19	19.19	20.19	20.19	21.19	21.19	22.19	22.19	23.19	23.19	24.19	24.19	19
18.20	18.20	19.20	19.20	20.20	20.20	21.20	21.20	22.20	22.20	23.20	23.20			

TABLE L.

TO FIND THE TIMES OF RISING AND SETTING OF A CELESTIAL OBJECT.

[illegible]

TO FIND THE TIMES OF RISING AND SETTING OF A CELESTIAL OBJECT.

Lat.		DECLINATION.																								Lat.	
		16	16.30	17	17.30	18	18.30	19	19.30	20	20.30	21	21.30	22	22.30	23	23.30										
0	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m									
0	6	0	6	0	6	0	6	0	6	0	6	0	6	0	6	0	6	0									
1	6	1	6	1	6	1	6	1	6	1	6	1	6	2	6	2	6	2									
2	6	2	6	2	6	3	6	3	6	3	6	3	6	3	6	3	6	3									
3	6	3	6	4	6	4	6	4	6	4	6	5	6	5	6	5	6	5									
4	6	5	6	5	6	5	6	5	6	6	6	6	6	6	6	6	6	7									
5	6	6	6	6	6	6	6	7	6	7	6	7	6	7	6	7	6	7									
6	6	7	6	7	6	8	6	8	6	8	6	9	6	9	6	10	6	10									
7	6	8	6	8	6	9	6	9	6	10	6	11	6	11	6	12	6	12									
8	6	9	6	9	6	10	6	11	6	11	6	12	6	13	6	13	6	14									
9	6	10	6	11	6	12	6	12	6	13	6	14	6	14	6	15	6	16									
10	6	12	6	12	6	13	6	14	6	14	6	15	6	16	6	17	6	18									
11	6	13	6	13	6	14	6	15	6	15	6	16	6	17	6	18	6	19									
12	6	14	6	14	6	15	6	16	6	16	6	17	6	18	6	19	6	20									
13	6	15	6	15	6	16	6	17	6	17	6	18	6	19	6	20	6	21									
14	6	16	6	16	6	17	6	18	6	18	6	19	6	20	6	21	6	22									
15	6	18	6	18	6	19	6	19	6	20	6	21	6	22	6	23	6	24									
16	6	19	6	19	6	20	6	21	6	21	6	22	6	23	6	24	6	25									
17	6	20	6	21	6	22	6	22	6	23	6	24	6	25	6	26	6	27									
18	6	21	6	22	6	23	6	23	6	24	6	25	6	26	6	27	6	28									
19	6	23	6	23	6	24	6	25	6	26	6	27	6	28	6	29	6	30									
20	6	24	6	25	6	26	6	27	6	28	6	29	6	30	6	31	6	32									
21	6	25	6	26	6	27	6	28	6	29	6	30	6	31	6	32	6	33									
22	6	27	6	27	6	28	6	29	6	30	6	31	6	32	6	33	6	34									
23	6	28	6	29	6	30	6	31	6	32	6	33	6	34	6	35	6	36									
24	6	29	6	30	6	31	6	32	6	33	6	34	6	35	6	36	6	37									
25	6	31	6	32	6	33	6	34	6	35	6	36	6	37	6	38	6	39									
26	6	32	6	33	6	34	6	35	6	36	6	37	6	38	6	39	6	40									
27	6	34	6	35	6	36	6	37	6	38	6	39	6	40	6	41	6	42									
28	6	35	6	36	6	37	6	39	6	40	6	41	6	42	6	43	6	44									
29	6	37	6	38	6	39	6	40	6	42	6	43	6	44	6	45	6	46									
30	6	38	6	39	6	41	6	42	6	43	6	45	6	46	6	47	6	48									
31	6	40	6	41	6	42	6	44	6	45	6	46	6	48	6	49	6	50									
32	6	41	6	43	6	44	6	46	6	47	6	48	6	50	6	51	6	52									
33	6	43	6	44	6	46	6	47	6	49	6	50	6	52	6	53	6	54									
34	6	45	6	46	6	48	6	49	6	51	6	52	6	54	6	55	6	56									
35	6	46	6	48	6	49	6	51	6	53	6	54	6	56	6	57	6	58									
36	6	48	6	50	6	51	6	53	6	55	6	56	6	58	6	59	6	60									
37	6	50	6	52	6	53	6	55	6	57	6	58	6	60	6	61	6	62									
38	6	52	6	53	6	55	6	57	6	59	6	60	6	62	6	63	6	64									
39	6	54	6	55	6	57	6	59	6	61	6	62	6	64	6	65	6	66									
40	6	56	6	58	6	59	6	61	6	63	6	64	6	66	6	67	6	68									
41	6	58	6	60	6	61	6	63	6	65	6	66	6	68	6	69	6	70									
42	6	60	6	62	6	63	6	65	6	67	6	68	6	70	6	71	6	72									
43	6	62	6	64	6	65	6	67	6	69	6	70	6	72	6	73	6	74									
44	6	64	6	66	6	67	6	69	6	71	6	72	6	74	6	75	6	76									
45	6	66	6	68	6	69	6	71	6	73	6	74	6	76	6	77	6	78									
46	6	68	6	70	6	71	6	73	6	75	6	76	6	78	6	79	6	80									
47	6	70	6	72	6	73	6	75	6	77	6	78	6	80	6	81	6	82									
48	6	72	6	74	6	75	6	77	6	79	6	80	6	82	6	83	6	84									
49	6	74	6	76	6	77	6	79	6	81	6	82	6	84	6	85	6	86									
50	6	76	6	78	6	79	6	81	6	83	6	84	6	86	6	87	6	88									
51	6	78	6	80	6	81	6	83	6	85	6	86	6	88	6	89	6	90									
52	6	80	6	82	6	83	6	85	6	87	6	88	6	90	6	91	6	92									
53	6	82	6	84	6	85	6	87	6	89	6	90	6	92	6	93	6	94									
54	6	84	6	86	6	87	6	89	6	91	6	92	6	94	6	95	6	96									
55	6	86	6	88	6	89	6	91	6	93	6	94	6	96	6	97	6	98									
56	6	88	6	90	6	91	6	93	6	95	6	96	6	98	6	99	6	100									
57	6	90	6	92	6	93	6	95	6	97	6	98	6	100	6	101	6	102									
58	6	92	6	94	6	95	6	97	6	99	6	100	6	102	6	103	6	104									
59	6	94	6	96	6	97	6	99	6	101	6	102	6	104	6	105	6	106									
60	6	96	6	98	6	99	6	101	6	103	6	104	6	106	6	107	6	108									
Lat.	16	16.30	17	17.30	18	18.30	19	19.30	20	20.30	21	21.30	22	22.30	23	23.30	Lat.										
DECLINATION.																											

FOR COMPUTING THE MERIDIONAL ALTITUDE OF A CELESTIAL OBJECT.

		Declination of the object of the same name with the Latitude.														
Latitude	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	Latitude	0°
		11°	10°	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	1°		
0	900.534	110.585	55.577	37.314	27.558	22.238	18.374	15.381	13.559	12.238	11.70	10.50	9.140	8.298	0	0
1	110.585	900.463	110.545	55.546	37.287	27.532	22.216	18.350	15.557	13.496	12.216	11.47	10.28	9.118	1	1
2	55.577	110.545	900.213	110.465	55.495	37.246	27.495	22.183	18.320	15.529	13.507	12.189	11.21	10.032	2	2
3	37.314	55.546	110.465	899.398	110.354	55.424	37.191	27.451	22.162	18.282	15.494	13.474	12.137	10.500	3	3
4	27.558	37.287	55.495	110.354	898.419	110.184	55.332	37.123	27.395	22.93	18.238	15.453	13.436	12.121	4	4
5	22.238	27.532	37.246	55.424	110.184	897.209	109.584	55.220	37.41	27.329	22.36	18.187	15.406	13.393	5	5
6	18.374	22.216	27.495	37.191	55.332	109.584	895.458	109.345	55.88	36.546	27.253	21.571	18.130	15.354	6	6
7	15.381	18.350	22.183	27.451	37.123	55.220	109.345	893.537	109.67	54.536	36.438	27.167	21.499	18.66	7	7
8	13.559	15.557	18.320	22.162	27.395	37.41	55.88	109.67	891.447	108.350	54.365	36.316	27.72	21.418	8	8
9	12.238	13.496	15.529	18.282	22.93	27.329	36.546	54.536	108.350	889.190	107.595	54.174	36.181	26.567	9	9
10	11.70	12.216	13.507	15.494	18.238	22.36	27.253	36.438	54.365	107.595	886.637	107.301	53.564	36.34	10	10
11	10.50	11.47	12.189	13.474	15.453	18.187	21.571	27.167	36.316	54.174	107.301	883.381	106.371	53.335	11	11
12	9.140	10.28	11.21	12.157	13.436	15.406	18.130	21.499	27.72	36.181	53.564	106.371	880.234	105.503	12	12
13	8.298	9.118	10.032	10.509	12.121	13.393	15.354	18.66	21.418	26.567	36.34	53.335	105.503	876.527	13	13
14	7.523	8.298	9.93	9.572	10.555	12.80	13.345	15.297	17.595	21.330	26.452	53.87	104.599	872.527	14	14
15	7.196	7.501	8.251	9.64	9.539	10.517	12.35	13.292	15.234	17.519	21.234	26.328	35.302	52.421	15	15
16	6.507	7.174	7.476	8.222	9.32	9.502	10.475	11.586	13.235	15.165	17.437	21.131	26.195	35.117	16	16
17	6.251	6.486	7.150	7.449	8.191	8.596	9.462	10.428	11.533	13.173	15.91	17.345	21.20	26.53	17	17
18	6.25	6.229	6.461	7.122	7.418	8.157	8.558	9.418	10.378	11.475	13.106	15.12	17.252	20.508	18	18
19	5.418	6.04	6.205	6.435	7.93	7.385	8.120	8.516	9.371	10.325	11.413	13.34	14.528	17.151	19	19
20	5.236	5.396	5.574	6.179	6.406	7.60	7.349	8.80	8.471	9.321	10.267	11.347	12.558	14.839	20	20
21	5.67	5.215	5.373	5.554	6.150	6.374	7.26	7.311	8.37	8.423	9.267	10.207	11.278	12.478	21	21
22	4.512	5.46	5.191	5.347	5.526	6.120	6.340	6.588	7.269	7.591	8.372	9.210	10.142	11.204	22	22
23	4.375	4.491	5.22	5.166	5.319	5.495	6.87	6.304	6.548	7.226	7.543	8.318	9.150	10.74	23	23
24	4.244	4.353	4.468	4.597	5.138	5.290	5.463	6.51	6.266	6.506	7.179	7.492	8.262	9.86	24	24
25	4.125	4.223	4.330	4.443	4.571	5.110	5.258	5.429	6.14	6.225	6.462	7.131	7.438	8.202	25	25
26	4.16	4.104	4.200	4.305	4.416	4.542	5.79	5.325	5.393	5.575	6.182	6.415	7.80	7.382	26	26
27	3.511	3.594	4.81	4.175	4.279	4.388	4.512	5.46	5.190	5.355	5.534	6.137	6.366	7.26	27	27
28	3.415	3.490	3.572	4.57	4.149	4.251	4.358	4.479	5.11	5.152	5.315	5.490	6.90	6.391	28	28
29	3.324	3.394	3.468	3.548	4.31	4.122	4.222	4.327	4.446	4.575	5.114	5.272	5.445	6.41	29	29
30	3.238	3.303	3.371	3.444	3.522	4.04	4.93	4.191	4.294	4.410	4.537	5.73	5.329	5.398	30	30
31	3.159	3.219	3.280	3.347	3.418	3.495	3.575	4.62	4.158	4.259	4.374	4.498	5.31	5.184	31	31
32	3.85	3.138	3.196	3.257	3.322	3.392	3.467	3.545	4.31	4.126	4.223	4.335	4.457	4.587	32	32
33	3.13	3.64	3.116	3.172	3.232	3.296	3.364	3.437	3.514	3.468	4.59	4.186	4.295	4.414	33	33
34	2.546	2.592	3.41	3.93	3.148	3.206	3.268	3.335	3.407	3.481	3.553	4.53	4.147	4.254	34	34
35	2.483	2.525	2.570	3.18	3.68	3.122	3.179	3.240	3.304	3.375	3.448	3.527	4.15	4.107	35	35
36	2.421	2.462	2.503	2.547	2.594	3.42	3.95	3.150	3.210	3.273	3.341	3.413	3.490	3.578	36	36
37	2.363	2.400	2.440	2.480	2.522	2.568	3.16	3.67	3.121	3.179	3.240	3.307	3.376	3.452	37	37
38	2.307	2.342	2.378	2.417	2.456	2.497	2.542	2.588	3.88	3.90	3.147	3.207	3.272	3.339	38	38
39	2.254	2.286	2.320	2.355	2.393	2.431	2.471	2.514	2.559	3.08	3.59	3.114	3.172	3.233	39	39
40	2.204	2.234	2.264	2.297	2.331	2.368	2.406	2.444	2.486	2.530	2.577	3.26	3.80	3.135	40	40
41	2.155	2.183	2.212	2.241	2.273	2.307	2.342	2.378	2.416	2.457	2.499	2.544	2.593	3.45	41	41
42	2.109	2.134	2.161	2.189	2.218	2.249	2.281	2.315	2.350	2.387	2.426	2.468	2.512	2.559	42	42
43	2.63	2.88	2.112	2.138	2.165	2.193	2.224	2.255	2.288	2.321	2.357	2.395	2.435	2.478	43	43
44	2.20	2.42	2.66	2.90	2.115	2.141	2.168	2.197	2.228	2.260	2.292	2.327	2.364	2.405	44	44
45	1.578	1.599	2.20	2.44	2.66	2.91	2.116	2.142	2.170	2.200	2.231	2.262	2.295	2.331	45	45
46	1.537	1.557	1.577	1.598	2.20	2.42	2.65	2.90	2.116	2.143	2.171	2.201	2.231	2.263	46	46
47	1.498	1.516	1.535	1.555	1.575	1.596	2.18	2.40	2.64	2.88	2.114	2.142	2.171	2.200	47	47
48	1.461	1.477	1.495	1.513	1.532	1.551	1.572	1.592	2.14	2.37	2.60	2.86	2.119	2.146	48	48
49	1.424	1.440	1.456	1.473	1.490	1.508	1.527	1.547	1.566	1.587	2.09	2.32	2.86	2.814	49	49
50	1.388	1.403	1.418	1.434	1.450	1.467	1.484	1.502	1.521	1.540	1.560	1.581	2.02	2.26	50	50
51	1.350	1.363	1.376	1.390	1.403	1.417	1.398	1.403	1.418	1.434	1.450	1.468	1.485	1.504	51	51
52	1.315	1.327	1.339	1.350	1.362	1.374	1.387	1.340	1.353	1.367	1.382	1.397	1.412	1.428	52	52
53	1.195	1.204	1.214	1.224	1.234	1.244	1.254	1.265	1.277	1.289	1.299	1.310	1.321	1.331	53	53
54	1.136	1.144	1.152	1.161	1.170	1.179	1.188	1.197	1.207	1.217	1.227	1.238	1.249	1.259	54	54
55	1.80	1.87	1.94	1.102	1.109	1.116	1.124	1.132	1.140	1.148	1.157	1.166	1.175	1.185	55	55
56	1.26	1.32	1.38	1.44	1.51	1.57	1.63	1.70	1.77	1.84	1.91	1.98	1.106	1.116	56	56
57	0.575	0.579	0.585	0.590	0.595	1.00	1.06	1.10	1.17	1.23	1.28	1.33	1.41	1.47	57	57
58	0.525	0.528	0.533	0.537	0.541	0.546	0.550	0.555	0.560	0.564	0.569	0.575	0.579	0.585	58	58
59	0.476	0.479	0.483	0.486	0.490	0.493	0.497	0.501	0.505	0.508	0.512	0.517	0.521	0.525	59	59
60	0.429	0.432	0.434	0.437	0.440	0.443	0.446	0.449	0.452	0.455	0.458	0.461	0.465	0.468	60	60
61	0.383	0.385	0.387	0.390	0.392	0.394	0.396	0.399	0.401	0.403	0.406	0.409	0.411	0.414	61	61

Declination of the object of the same name with the Latitude.

Note.—When the object either comes to, or within one degree of the zenith, the angle of meeting made by the latitude and the declination (both of the same name) will fall within the double lines which run obliquely through the body of this Table and through the upper left hand corner of Table LI.: in this case, since the interval between the time of observation and noon or meridional passage, must not exceed one minute, the corresponding number will, therefore, be the correction of altitude direct, independently of any logarithmic calculation whatever.

FOR COMPUTING THE MERIDIONAL ALTITUDE OF A CELESTIAL OBJECT.

Latitude		Declination of the object of a different name with the Latitude.													Latitude	
		0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°		13°
0	0	900.53.4	110.58.5	55.57.7	37.31.4	27.55.8	22.23.8	18.37.4	15.58.1	13.55.9	12.23.8	11.7.0	10.5.0	9.14.0	8.29.8	0
1	1	110.58.5	55.58.4	37.32.9	27.57.3	22.25.7	18.39.1	15.59.9	13.57.6	12.25.7	11.8.8	10.6.5	9.15.9	8.31.7	7.54.2	1
2	2	55.57.7	37.32.9	27.57.8	22.26.5	18.40.1	16.1.1	13.58.9	12.27.1	11.10.2	10.8.4	9.17.5	8.33.3	7.55.8	7.23.2	2
3	3	37.31.4	27.57.3	22.26.5	18.40.5	16.1.7	13.59.7	12.28.0	11.11.3	10.9.5	9.18.7	8.34.5	7.57.2	7.24.5	6.53.8	3
4	4	27.55.8	22.25.7	18.40.1	16.1.7	14.0.0	12.28.5	11.11.9	10.10.3	9.19.5	8.35.5	7.58.2	7.25.6	6.56.9	6.31.4	4
5	5	22.23.8	18.39.1	16.1.1	13.59.7	12.28.5	11.12.1	10.10.6	9.20.1	8.36.1	7.58.9	7.26.5	6.57.9	6.32.4	6.10.0	5
6	6	18.37.4	15.59.9	13.58.9	12.28.0	11.11.9	10.10.6	9.20.2	8.36.5	7.59.4	7.27.1	6.58.5	6.33.1	6.10.8	5.50.3	6
7	7	15.58.1	13.57.6	12.27.1	11.11.3	10.10.3	9.20.1	8.36.5	7.59.6	7.27.3	6.58.9	6.33.6	6.11.4	5.51.0	5.31.1	7
8	8	13.55.9	12.25.7	11.10.2	10.9.5	9.19.5	8.36.1	7.59.4	7.27.3	6.59.0	6.33.9	6.11.7	5.51.4	5.33.4	5.17.0	8
9	9	12.23.8	11.8.8	10.8.4	9.18.7	8.35.5	7.58.9	7.27.1	6.58.9	6.33.9	6.11.9	5.51.6	5.33.9	5.17.4	5.2.3	9
10	10	11.7.0	10.6.5	9.17.5	8.34.5	7.58.2	7.26.5	6.58.5	6.33.6	6.11.7	5.51.6	5.34.0	5.17.6	5.2.6	4.49.2	10
11	11	10.5.0	9.15.9	8.33.3	7.57.2	7.25.6	6.57.9	6.33.1	6.11.4	5.51.4	5.33.9	5.17.6	5.2.7	4.49.4	4.36.8	11
12	12	9.14.0	8.31.7	7.55.8	7.24.5	6.56.9	6.32.4	6.10.8	5.51.0	5.33.4	5.17.4	5.2.6	4.49.4	4.36.9	4.25.5	12
13	13	8.29.8	7.54.2	7.23.2	6.55.8	6.31.4	6.10.0	5.50.3	5.33.1	5.17.0	5.2.3	4.49.2	4.36.8	4.25.5	4.13.2	13
14	14	7.52.3	7.21.5	6.54.3	6.30.2	6.9.0	5.49.4	5.32.4	5.16.4	5.1.8	4.48.8	4.36.6	4.25.4	4.15.1	4.3.3	14
15	15	7.19.6	6.52.7	6.28.7	6.7.7	5.48.3	5.31.4	5.15.6	5.1.1	4.48.3	4.36.1	4.25.1	4.14.9	4.1.1	3.56.1	15
16	16	6.50.7	6.27.0	6.6.2	5.47.0	5.30.3	5.14.0	5.9.3	4.47.6	4.35.5	4.24.5	4.14.4	4.1.4	3.55.9	3.47.5	16
17	17	6.25.1	6.4.5	5.45.6	5.28.9	5.13.4	4.59.2	4.46.7	4.34.7	4.23.8	4.13.9	4.4.3	3.55.5	3.47.2	3.39.5	17
18	18	6.2.5	5.43.7	5.27.3	5.2.0	4.58.0	4.45.6	4.33.8	4.23.0	4.17.1	4.3.7	3.55.0	3.46.7	3.39.1	3.31.9	18
19	19	5.41.8	5.25.5	5.10.5	4.56.6	4.44.3	4.32.6	4.22.0	4.12.2	4.2.9	3.54.3	3.46.2	3.38.6	3.31.4	3.24.7	19
20	20	5.23.6	5.8.7	4.55.0	4.42.8	4.31.3	4.20.8	4.11.2	4.2.9	3.53.4	3.45.4	3.38.0	3.30.9	3.24.3	3.18.0	20
21	21	5.6.7	4.53.2	4.41.7	4.29.8	4.19.5	4.10.6	4.0.9	3.52.5	3.44.5	3.37.2	3.30.2	3.23.6	3.17.4	3.11.6	21
22	22	4.51.2	4.39.4	4.28.2	4.18.0	4.8.6	3.59.6	3.51.3	3.43.5	3.36.3	3.29.4	3.22.9	3.16.8	3.11.0	3.5.6	22
23	23	4.37.5	4.26.4	4.16.2	4.7.1	3.58.2	3.50.0	3.42.3	3.35.2	3.28.4	3.22.1	3.16.0	3.10.3	3.5.0	2.59.7	23
24	24	4.24.4	4.14.5	4.5.4	3.56.7	3.48.6	3.41.0	3.34.0	3.27.3	3.21.1	3.15.1	3.9.5	3.4.2	2.59.1	2.54.2	24
25	25	4.12.5	4.3.6	3.55.0	3.47.1	3.39.6	3.32.6	3.26.1	3.19.9	3.14.0	3.8.6	3.3.4	2.58.3	2.53.5	2.48.9	25
26	26	4.1.6	3.53.1	3.45.3	3.38.0	3.31.2	3.24.7	3.18.7	3.12.9	3.7.5	3.2.4	2.57.4	2.52.7	2.48.1	2.43.9	26
27	27	3.51.1	3.43.5	3.36.3	3.29.6	3.23.2	3.17.3	3.11.6	3.6.3	3.1.3	2.56.4	2.51.7	2.47.3	2.43.1	2.39.1	27
28	28	3.41.5	3.34.4	3.27.8	3.21.6	3.15.7	3.10.2	3.5.0	3.0.0	2.55.2	2.50.7	2.46.3	2.42.2	2.38.3	2.34.4	28
29	29	3.32.4	3.26.0	3.19.8	3.14.1	3.8.6	3.3.5	2.58.7	2.54.0	2.49.5	2.45.2	2.41.2	2.37.3	2.33.6	2.30.1	29
30	30	3.23.8	3.17.9	3.12.4	3.7.0	3.2.0	2.57.2	2.52.6	2.48.2	2.44.0	2.40.1	2.36.3	2.32.6	2.29.2	2.25.8	30
31	31	3.15.9	3.10.5	3.5.1	3.0.3	2.55.7	2.51.1	2.46.8	2.42.7	2.38.9	2.35.1	2.31.5	2.28.2	2.24.8	2.21.6	31
32	32	3.8.5	3.3.3	2.58.5	2.54.0	2.49.5	2.45.3	2.41.3	2.37.5	2.33.9	2.30.4	2.27.1	2.23.8	2.20.7	2.17.7	32
33	33	3.1.3	2.56.6	2.52.2	2.47.8	2.43.7	2.39.8	2.36.1	2.32.5	2.29.1	2.25.9	2.22.7	2.19.6	2.16.7	2.13.8	33
34	34	2.54.6	2.50.3	2.46.0	2.42.0	2.38.1	2.34.6	2.31.1	2.27.7	2.24.6	2.21.4	2.18.4	2.15.6	2.12.8	2.10.1	34
35	35	2.45.3	2.44.1	2.40.9	2.36.4	2.32.9	2.29.5	2.26.3	2.23.2	2.20.1	2.17.3	2.14.4	2.11.7	2.9.0	2.6.5	35
36	36	2.42.1	2.38.3	2.34.6	2.31.2	2.27.9	2.24.7	2.21.7	2.18.7	2.15.8	2.13.1	2.10.5	2.7.9	2.5.4	2.3.1	36
37	37	2.36.3	2.32.7	2.29.4	2.26.2	2.23.0	2.20.1	2.17.2	2.14.4	2.11.8	2.9.2	2.6.7	2.4.3	2.2.0	1.59.0	37
38	38	2.30.7	2.27.5	2.24.3	2.21.3	2.18.4	2.15.6	2.12.9	2.10.3	2.7.8	2.5.3	2.3.0	2.0.8	1.58.5	1.56.4	38
39	39	2.25.4	2.22.4	2.19.4	2.16.7	2.13.9	2.11.3	2.8.8	2.6.3	2.3.9	2.1.7	1.59.5	1.57.3	1.55.2	1.53.3	39
40	40	2.20.4	2.17.6	2.14.8	2.12.1	2.9.6	2.7.1	2.4.7	2.2.4	2.0.2	1.58.1	1.56.0	1.54.0	1.52.0	1.50.1	40
41	41	2.15.5	2.12.9	2.10.3	2.7.8	2.5.4	2.3.1	2.0.9	1.58.7	1.56.7	1.54.6	1.52.7	1.50.7	1.48.9	1.47.1	41
42	42	2.10.9	2.8.3	2.5.9	2.3.6	2.1.4	1.59.4	1.57.1	1.55.2	1.53.1	1.51.2	1.49.4	1.47.6	1.45.8	1.44.1	42
43	43	2.6.3	2.4.0	2.1.8	1.59.6	1.57.5	1.55.5	1.53.6	1.51.6	1.49.8	1.48.0	1.46.3	1.44.5	1.42.9	1.41.2	43
44	44	2.2.0	1.59.8	1.57.7	1.55.7	1.53.7	1.51.9	1.50.0	1.48.2	1.46.5	1.44.8	1.43.1	1.41.5	1.40.0	1.38.5	44
45	45	1.57.8	1.55.7	1.53.8	1.51.9	1.50.1	1.48.3	1.46.6	1.44.9	1.43.3	1.41.7	1.40.1	1.38.6	1.37.2	1.35.7	45
46	46	1.53.7	1.51.9	1.50.1	1.48.3	1.46.5	1.44.9	1.43.3	1.41.7	1.40.1	1.38.7	1.37.2	1.35.8	1.34.4	1.33.0	46
47	47	1.49.8	1.48.1	1.46.4	1.44.7	1.43.1	1.41.5	1.40.1	1.38.5	1.37.1	1.35.7	1.34.4	1.33.0	1.31.7	1.30.4	47
48	48	1.46.1	1.44.5	1.42.8	1.41.3	1.39.8	1.38.3	1.36.9	1.35.5	1.34.1	1.32.9	1.31.5	1.30.3	1.29.0	1.27.8	48
49	49	1.42.4	1.40.8	1.39.4	1.37.9	1.36.6	1.35.1	1.33.8	1.32.5	1.31.3	1.30.0	1.28.8	1.27.6	1.26.4	1.25.3	49
50	50	1.38.8	1.37.4	1.36.0	1.34.7	1.33.4	1.32.1	1.30.8	1.29.6	1.28.4	1.27.2	1.26.1	1.25.0	1.23.9	1.22.8	50
51	51	1.35.0	1.33.8	1.32.6	1.31.4	1.30.2	1.29.0	1.27.9	1.26.7	1.25.6	1.24.5	1.23.4	1.22.4	1.21.3	1.20.3	51
52	52	1.31.2	1.30.0	1.28.8	1.27.6	1.26.4	1.25.2	1.24.1	1.23.0	1.21.9	1.20.9	1.19.9	1.18.9	1.18.0	1.17.0	52
53	53	1.27.6	1.26.5	1.25.5	1.24.5	1.23.5	1.22.5	1.21.5	1.20.5	1.19.5	1.18.6	1.17.6	1.16.6	1.15.6	1.14.6	53
54	54	1.24.1	1.23.5	1.22.5	1.21.5	1.20.5	1.19.5	1.18.5	1.17.5	1.16.5	1.15.5	1.14.5	1.13.5	1.12.5	1.11.5	54
55	55	1.20.6	1.19.5	1.18.6	1.17.6	1.16.7	1.15.9	1.15.0	1.14.2	1.13.4	1.12.6	1.11.8	1.11.0	1.10.2	1.9.5	55
56	56	1.17.1	1.16.6	1.15.6	1.14.6	1.13.6	1.12.6	1.11.6	1.10.6	1.09.6	1.08.6	1.07.6	1.06.6	1.05.6	1.04.6	56
57	57	1.13.6	1.12.8	1.12.0	1.11.3	1.10.5	1.9.8	1.9.1	1.8.4	1.7.7	1.7.0	1.6.3	1.5.7	1.5.0	1.4.3	57
58	58	1.10.1	1.9.5	1.8.7	1.8.0	1.7.3	1.6.6	1.5.9	1.5.2	1.4.5	1.3.8	1.3.1	1.2.4	1.1.7	1.1.0	58
59	59	1.6.6	1.5.9	1.5.2	1.4.5	1.3.8	1.3.1	1.2.4	1.1.7	1.1.0	1.0.3	9.6	8.9	8.2	7.5	59
60	60	1.3.1	1.2.4	1.1.7	1.1.0	1.0.3	9.6	8.9	8.2	7.5	6.8	6.1	5.4	4.7	4.0	60
61	61	1.2.6	1.2.1	1.1.5	1.0.9	1.0.4	0.9.8	0.9.3	0.8.8	0.8.3	0.7.8	0.7.3	0.6.8	0.6.3	0.5.8	61
62	62	0.57.5	0.56.9	0.56.5	0.56.0	0.55.6	0.55.1	0.54.7	0.54.2	0.53.8	0.53.3	0.52.9	0.52.5	0.52.1	0.51.6	62
63	63	0.54.5	0.54.0													

Declination of the object of a different name with the Latitude.

14°	15°	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	Latitude
7.523	7.196	6.507	6.251	6.25	5.418	5.236	5.67	4.512	4.375	4.244	4.125	4.16	3.511	3.415	0
7.215	6.527	5.970	6.45	5.437	5.956	5.87	4.532	4.394	4.264	4.145	4.36	3.531	3.485	3.344	1
6.543	6.287	6.62	5.450	5.273	5.105	4.550	4.412	4.282	4.162	4.54	3.550	3.453	3.363	3.278	2
6.302	6.77	5.470	5.289	5.20	4.566	4.428	4.298	4.180	4.71	3.507	3.471	3.380	3.296	3.216	3
6.90	5.483	5.303	5.134	4.580	4.443	4.313	4.195	4.86	3.582	3.486	3.396	3.312	3.232	3.157	4
5.494	5.314	5.146	4.592	4.456	4.326	4.200	4.100	3.596	3.500	3.410	3.326	3.247	3.173	3.102	5
5.324	5.156	5.03	4.467	4.338	4.220	4.112	4.09	3.513	3.423	3.340	3.261	3.187	3.116	3.50	6
5.164	5.11	4.476	4.347	4.200	4.122	4.20	3.525	3.435	3.352	3.273	3.199	3.129	3.63	3.08	7
5.18	4.483	4.355	4.238	4.171	4.29	3.534	3.445	3.363	3.284	3.351	3.140	3.75	3.13	2.553	8
4.488	4.361	4.245	4.139	4.37	3.543	3.454	3.372	3.294	3.221	3.151	3.85	3.24	2.564	2.507	9
4.366	4.250	4.144	4.3	3.550	3.462	3.380	3.302	3.229	3.160	3.95	3.34	2.574	2.517	2.463	10
4.254	4.144	4.48	3.559	3.467	3.386	3.309	3.236	3.168	3.103	3.42	2.583	2.527	2.473	2.423	11
4.151	4.51	3.559	3.472	3.391	3.314	3.243	3.174	3.110	3.50	2.591	2.535	2.481	2.431	2.383	12
4.53	3.561	3.475	3.395	3.319	3.247	3.180	3.116	3.56	2.597	2.542	2.489	2.439	2.391	2.344	13
3.562	3.476	3.397	3.321	3.251	3.184	3.120	3.61	3.03	2.588	2.495	2.446	2.398	2.352	2.309	14
3.476	3.398	3.323	3.253	3.186	3.124	3.65	3.07	2.553	2.500	2.452	2.404	2.358	2.316	2.273	15
3.397	3.323	3.244	3.188	3.129	3.67	3.10	2.556	2.504	2.456	2.409	2.364	2.321	2.279	2.239	16
3.321	3.253	3.188	3.126	3.66	3.12	2.559	2.507	2.460	2.413	2.368	2.326	2.285	2.245	2.207	17
3.251	3.186	3.126	3.69	3.13	2.560	2.509	2.462	2.416	2.372	2.330	2.289	2.249	2.212	2.175	18
3.184	3.124	3.67	3.12	2.560	2.510	2.463	2.418	2.374	2.333	2.292	2.253	2.216	2.179	2.144	19
3.120	3.65	3.10	2.559	2.509	2.463	2.418	2.375	2.334	2.294	2.256	2.219	2.183	2.148	2.115	20
3.61	3.07	2.556	2.507	2.462	2.418	2.375	2.335	2.295	2.257	2.221	2.185	2.151	2.119	2.87	21
3.03	2.553	2.504	2.460	2.416	2.374	2.334	2.295	2.258	2.222	2.187	2.153	2.121	2.90	2.59	22
2.548	2.500	2.457	2.413	2.372	2.333	2.294	2.257	2.222	2.187	2.154	2.122	2.92	2.61	2.32	23
2.452	2.452	2.409	2.368	2.330											

Note.—When the object either comes to, or within one degree of the zenith, the interval between the time of observation and noon, or meridional passage, must not exceed one minute: in this case, the number corresponding to the latitude, and the declination (these being of different names) will be found within the double lines at the upper left hand corner of the first page of this Table which number will be the correction of altitude direct, independently of any logarithmic calculation whatever.

TABLE LIII.

The Miles and decimal parts of a Mile contained in a degree of Longitude at every degree of Latitude.

Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.	Degr. Lat.	Miles.
0	60.00	13	58.46	26	53.93	39	46.63	52	36.94	65	26.36	78	12.47
1	59.99	14	58.22	27	53.46	40	45.96	53	36.11	66	24.40	79	11.45
2	59.96	15	57.95	28	52.97	41	45.28	54	35.27	67	23.44	80	10.42
3	59.92	16	57.67	29	52.47	42	44.59	55	34.41	68	22.48	81	9.39
4	59.85	17	57.38	30	51.96	43	43.88	56	33.55	69	21.50	82	8.35
5	59.77	18	57.06	31	51.43	44	43.16	57	32.68	70	20.52	83	7.31
6	59.67	19	56.73	32	50.88	45	42.43	58	31.80	71	19.53	84	6.27
7	59.55	20	56.38	33	50.32	46	41.68	59	30.90	72	18.54	85	5.23
8	59.42	21	56.01	34	49.74	47	40.92	60	30.00	73	17.54	86	4.19
9	59.26	22	55.63	35	49.15	48	40.15	61	29.09	74	16.54	87	3.14
10	59.08	23	55.23	36	48.54	49	39.36	62	28.17	75	15.53	88	2.09
11	58.89	24	54.81	37	47.92	50	38.57	63	27.24	76	14.52	89	1.05
12	58.68	25	54.38	38	47.28	51	37.76	64	26.30	77	13.50	90	0.00

TABLE LIV.—Proportional Miles for constructing Marine or Sea Charts.

Parallels of Latitude in Degrees.	0°	10°	20°	30°	40°	50°	60°	70°	80°	89°
Ditto in Minutes of the Equator, or Miles of Long.	Miles 0	Miles 603.1	Miles 1225.1	Miles 1888.4	Miles 2622.6	Miles 3474.5	Miles 4527.4	Miles 5965.9	Miles 8375.2	Miles 16299.6
Difference of the Parallels in Miles of Longitude.	Miles 0	Miles 603.1	Miles 622.0	Miles 663.3	Miles 734.2	Miles 851.9	Miles 1052.9	Miles 1438.5	Miles 2409.3	Miles 7924.4
The intermediate degrees of latitude, with the corresponding miles of longitude, for graduating, or sub-dividing, the respective parallels of latitude.	0	Miles 60.0	Miles 61.0	Miles 64.1	Miles 69.6	Miles 79.0	Miles 94.3	Miles 121.8	Miles 179.8	Miles 363.9
	2	60.0	61.2	64.5	70.4	80.1	96.4	125.8	189.1	406.4
	3	60.1	61.5	64.9	71.1	81.4	98.6	129.9	199.6	460.3
	4	60.1	61.7	65.5	72.0	82.7	100.8	134.5	211.3	531.1
	5	60.2	62.0	65.9	72.8	84.2	103.4	139.4	224.6	627.7
	6	60.3	62.2	66.5	73.7	85.6	105.9	144.7	239.8	767.9
	7	60.4	62.6	67.0	74.6	87.1	109.0	150.5	257.1	989.6
	8	60.5	62.9	67.7	75.7	88.8	111.4	156.8	277.4	1394.3
	9	60.6	63.3	68.2	76.7	90.6	114.8	163.8	301.1	2383.2
	10	60.9	63.6	69.0	77.6	92.4	118.3	171.3	329.5	3383.2

TABLE LV.—To find the distance of Terrestrial objects at Sea.

Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.	Height in Feet.	Distance in Miles.
1	1.15	26	5.86	51	8.22	76	10.04	105	11.80	310	20.28	620	28.69
2	1.62	27	5.97	52	8.31	77	10.11	110	12.08	320	20.61	640	29.14
3	1.99	28	6.08	53	8.39	78	10.17	115	12.35	330	20.93	660	29.60
4	2.30	29	6.18	54	8.46	79	10.24	120	12.62	340	21.24	680	30.04
5	2.57	30	6.30	55	8.55	80	10.30	125	12.88	350	21.55	700	30.48
6	2.81	31	6.40	56	8.62	81	10.37	130	13.05	360	21.86	800	32.59
7	3.04	32	6.50	57	8.70	82	10.43	135	13.38	370	22.16	900	34.55
8	3.25	33	6.60	58	8.78	83	10.50	140	13.63	380	22.46	1000	36.43
9	3.45	34	6.70	59	8.85	84	10.56	145	13.87	390	22.75	1100	38.21
10	3.63	35	6.80	60	8.93	85	10.62	150	14.12	400	23.04	1200	39.91
11	3.81	36	6.90	61	9.00	86	10.68	160	14.57	410	23.32	1300	41.54
12	3.98	37	6.99	62	9.07	87	10.75	170	15.03	420	23.61	1400	43.11
13	4.14	38	7.09	63	9.14	88	10.81	180	15.46	430	23.89	1500	44.62
14	4.30	39	7.17	64	9.22	89	10.87	190	15.88	440	24.17	1600	46.08
15	4.45	40	7.27	65	9.29	90	10.93	200	16.29	450	24.44	1700	47.50
16	4.60	41	7.36	66	9.35	91	10.99	210	16.69	460	24.71	1800	48.88
17	4.73	42	7.44	67	9.42	92	11.05	220	17.08	470	24.97	1900	50.21
18	4.87	43	7.54	68	9.50	93	11.10	230	17.47	480	25.24	2000	51.52
19	5.01	44	7.62	69	9.57	94	11.17	240	17.84	490	25.50	2100	52.79
20	5.14	45	7.70	70	9.63	95	11.22	250	18.21	500	25.76	2200	54.04
21	5.26	46	7.79	71	9.71	96	11.29	260	18.58	520	26.27	2300	55.25
22	5.39	47	7.88	72	9.77	97	11.34	270	18.93	540	26.77	2400	56.44
23	5.51	48	7.96	73	9.85	98	11.40	280	19.27	560	27.26	2500	57.60
24	5.62	49	8.06	74	9.91	99	11.46	290	19.62	580	27.74	2600	58.74
25	5.74	50	8.15	75	9.98	100	11.52	300	19.95	600	28.22	2700	59.85

TO REDUCE THE FRENCH CENTESIMAL DIVISION OF THE CIRCLE INTO THE ENGLISH SEXAGESIMAL DIVISION, AND CONVERSELY.

PART I.—To convert French Degrees, Minutes, &c. into English.

[illegible]

PART II.—To convert English Degress, Minutes, &c. into French.

[illegible]

A general Table for Gauging, or finding the content of circular-headed Casks.—Part the first.

Quo. of Head div. by Bung Diam.	Logarithm for		Quo. of Head div. by Bung Diam.	Logarithm for		Quo. of Head div. by Bung Diam.	Logarithm for		Quo. of Head div. by Bung Diam.	Logarithm for		Quo. of Head div. by Bung Diam.	Logarithm for		Quo. of Head div. by Bung Diam.	Logarithm for	
	Ale Gallons.	Wine Gallons.		Ale Gallons.	Wine Gallons.		Ale Gallons.	Wine Gallons.		Ale Gallons.	Wine Gallons.		Ale Gallons.	Wine Gallons.		Ale Gallons.	Wine Gallons.
Inches	Index 7.	Index 7.	Inches	Index 7.	Index 7.	Inches	Index 7.	Index 7.	Inches	Index 7.	Index 7.	Inches	Index 7.	Index 7.	Inches	Index 7.	Index 7.
0.50	255899	342541	0.60	294047	380700	0.70	332257	418915	0.80	370273	456897	0.90	407833	494444	1.00	444841	531000
0.51	259680	346333	0.61	297870	384515	0.71	336059	422721	0.81	374015	460672	0.91	411552	498100	1.01	448841	534000
0.52	263518	350151	0.62	301703	388350	0.72	339869	426528	0.82	377798	464445	0.92	415291	501900	1.02	451552	537000
0.53	267336	353955	0.63	305502	392169	0.73	343684	430333	0.83	381566	468229	0.93	418997	505800	1.03	455291	540000
0.54	271144	357763	0.64	309332	395990	0.74	347486	434138	0.84	385338	471981	0.94	422705	509700	1.04	459029	543000
0.55	274966	361577	0.65	313171	399812	0.75	351294	437941	0.85	389095	475744	0.95	426397	513500	1.05	462763	546000
0.56	278777	365413	0.66	317018	403635	0.76	355087	441742	0.86	392873	479503	0.96	430107	517400	1.06	466512	549000
0.57	282622	369234	0.67	320811	407442	0.77	358886	445542	0.87	396600	483245	0.97	433749	521300	1.07	470263	552000
0.58	286389	373059	0.68	324612	411283	0.78	362671	449340	0.88	400365	486997	0.98	437497	525200	1.08	473997	555000
0.59	290235	376887	0.69	328441	415090	0.79	366479	453120	0.89	404098	490731	0.99	441161	529100	1.09	477763	558000

A general Table for Gauging, or finding the content of circular-headed Casks.—Part the second.

Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.	Bung Diam.	Log.
Inches	Index 2.	Inches	Index 2.	Inches	Index 2.	Inches	Index 2.	Inches	Index 2.	Inches	Index 2.	Inches	Index 2.	Inches	Index 2.	Inches	Index 2.
10.0	000000	15.0	352183	20.0	602060	25.0	795880	30.0	954243	35.0	1088136	40.0	1204120	45.0	1305305	50.0	1392000
10.1	008643	15.1	357954	20.1	606392	25.1	799347	30.1	957733	35.1	1092614	40.1	1208629	45.1	1310381	50.1	1396500
10.2	017200	15.2	363687	20.2	610703	25.2	802801	30.2	961014	35.2	1097085	40.2	1213145	45.2	1315162	50.2	1401600
10.3	025674	15.3	369383	20.3	614992	25.3	806241	30.3	964285	35.3	1099549	40.3	1216610	45.3	1319743	50.3	1406500
10.4	034067	15.4	375041	20.4	619260	25.4	809667	30.4	967547	35.4	1100007	40.4	1221073	45.4	1324224	50.4	1411400
10.5	042379	15.5	380663	20.5	623508	25.5	813080	30.5	968600	35.5	1100457	40.5	1226524	45.5	1328745	50.5	1416300
10.6	050612	15.6	386249	20.6	627734	25.6	816480	30.6	971443	35.6	1102900	40.6	1230975	45.6	1333266	50.6	1421200
10.7	058768	15.7	391799	20.7	631941	25.7	819866	30.7	974277	35.7	1105336	40.7	1235416	45.7	1337787	50.7	1426100
10.8	066848	15.8	397314	20.8	636127	25.8	823239	30.8	977101	35.8	1107766	40.8	1239857	45.8	1342308	50.8	1431000
10.9	074853	15.9	402794	20.9	640293	25.9	826600	30.9	979917	35.9	1110189	40.9	1244298	45.9	1346829	50.9	1435900
11.0	082785	16.0	408240	21.0	644439	26.0	829947	31.0	982723	36.0	1112605	41.0	1248739	46.0	1351850	51.0	1440800
11.1	090646	16.1	413652	21.1	648565	26.1	833281	31.1	985529	36.1	1115014	41.1	1253180	46.1	1356801	51.1	1445700
11.2	098436	16.2	419030	21.2	652672	26.2	836603	31.2	988330	36.2	1117417	41.2	1257621	46.2	1361802	51.2	1450600
11.3	106157	16.3	424375	21.3	656759	26.3	839911	31.3	991089	36.3	1119813	41.3	1262062	46.3	1366803	51.3	1455500
11.4	113810	16.4	429688	21.4	660828	26.4	843208	31.4	993859	36.4	1122203	41.4	1266503	46.4	1371804	51.4	1460400
11.5	121396	16.5	434968	21.5	664877	26.5	846492	31.5	996621	36.5	1124586	41.5	1270944	46.5	1376805	51.5	1465300
11.6	128916	16.6	440216	21.6	668908	26.6	849763	31.6	999374	36.6	1126962	41.6	1275385	46.6	1381806	51.6	1470200
11.7	136372	16.7	445433	21.7	672919	26.7	853023	31.7	1002119	36.7	1129332	41.7	1279826	46.7	1386807	51.7	1475100
11.8	143764	16.8	450619	21.8	676913	26.8	856270	31.8	1004854	36.8	1131696	41.8	1284267	46.8	1391808	51.8	1480000
11.9	151094	16.9	455773	21.9	680888	26.9	859505	31.9	1007581	36.9	1134053	41.9	1288708	46.9	1396809	51.9	1484900
12.0	158362	17.0	460898	22.0	684845	27.0	862728	32.0	1010300	37.0	1136403	42.0	1293149	47.0	1401810	52.0	1489800
12.1	165571	17.1	465992	22.1	688785	27.1	865939	32.1	1013010	37.1	1138748	42.1	1297590	47.1	1406811	52.1	1494700
12.2	172720	17.2	471057	22.2	692706	27.2	869138	32.2	1015712	37.2	1141086	42.2	1302031	47.2	1411812	52.2	1499600
12.3	179810	17.3	476092	22.3	696610	27.3	872325	32.3	1018405	37.3	1143418	42.3	1306472	47.3	1416813	52.3	1504500
12.4	186843	17.4	481098	22.4	700496	27.4	875501	32.4	1021090	37.4	1145743	42.4	1310913	47.4	1421814	52.4	1509400
12.5	193820	17.5	486076	22.5	704365	27.5	878666	32.5	1023767	37.5	1148063	42.5	1315354	47.5	1426815	52.5	1514300
12.6	200741	17.6	491025	22.6	708217	27.6	881818	32.6	1026435	37.6	1150376	42.6	1319795	47.6	1431816	52.6	1519200
12.7	207607	17.7	495947	22.7	712052	27.7	884960	32.7	1029096	37.7	1152683	42.7	1324236	47.7	1436817	52.7	1524100
12.8	214420	17.8	500840	22.8	715870	27.8	888090	32.8	1031748	37.8	1154984	42.8	1328677	47.8	1441818	52.8	1529000
12.9	221179	17.9	505706	22.9	719671	27.9	891208	32.9	1034392	37.9	1157278	42.9	1333118	47.9	1446819	52.9	1533900
13.0	227887	18.0	510545	23.0	723456	28.0	894316	33.0	1037028	38.0	1159567	43.0	1337559	48.0	1451820	53.0	1538800
13.1	234543	18.1	515357	23.1	727224	28.1	897413	33.1	1039656	38.1	1161850	43.1	1341999	48.1	1456821	53.1	1543700
13.2	241148	18.2	520143	23.2	730976	28.2	900498	33.2	1042276	38.2	1164125	43.2	1346440	48.2	1461822	53.2	1548600
13.3	247703	18.3	524902	23.3	734712	28.3	903573	33.3	1044888	38.3	1166398	43.3	1350881	48.3	1466823	53.3	1553500
13.4	254210	18.4	529636	23.4	738432	28.4	906637	33.4	1047493	38.4	1168662	43.4	1355322	48.4	1471824	53.4	1558400
13.5	260668	18.5	534343	23.5	742136	28.5	909690	33.5	1050099	38.5	1170921	43.5	1359763	48.5	1476825	53.5	1563300
13.6	267078	18.6	539026	23.6	745824	28.6	912732	33.6	1052679	38.6	1173175	43.6	1364204	48.6	1481826	53.6	1568200
13.7	273441	18.7	543683	23.7	749497	28.7	915764	33.7	1055260	38.7	1175422	43.7	1368645	48.7	1486827	53.7	1573100
13.8	279758	18.8	548316	23.8	753154	28.8	918785	33.8	1057833	38.8	1177663	43.8	1373086	48.8	1491828	53.8	1578000
13.9	286030	18.9	552924	23.9	756796	28.9	921796	33.9	1060399	38.9	1179899	43.9	1377527	48.9	1496829	53.9	1582900
14.0	292256	19.0	557507	24.0	760422	29.0	924796	34.0	1062958	39.0	1182129	44.0	1381968	49.0	1501830	54.0	1587800
14.1	298438	19.1	562067	24.1	764034	29.1	927786	34.1	1065509	39.1	1184354	44.1	1386409	49.1	1506831	54.1	1592700
14.2	304577	19.2	566602	24.2	767631	29.2	930766	34.2	1068052	39.2	1186572	44.2	1390850	49.2	1511832	54.2	1597600
14.3	310672	19.3	571115	24.3	771213	29.3	933735	34.3	1070588	39.3	1188785	44.3	1395291	49.3	1516833	54.3	1602500
14.4	316725	19.4	575603	24.4	774780	29.4	936695	34.4	1073117	39.4	1190992	44.4	1400732	49.4	1521834	54.4	1607400
14.5	322736	19.5	580069	24.5	778332	29.5	939644	34.5	1075638	39.5	1193194	44.5	1405173	49.5	1526835	54.5	1612300
14.6	328706	19.6	584512	24.6	781870	29.6	942583	34.6	1078152	39.6	1195390	44.6	1409614	49.6	1531836	54.6	1617200
14.7	334635	19.7	588932	24.7	785394	29.7	945513	34.7	1080659	39.7	1197581	44.7	1414055	49.7	1536837	54.7	1622100
14.8	340523	19.8	593330	24.8	788903	29.8	948433	34.8	1083158	39.8	1199766	44.8	1418496	49.8	1541838	54.8	1627000
14.9	346373	19.9	597706	24.9	792399	29.9	951342	34.9	1085651	39.9	1201946	44.9	1422937	49.9	1546839	54.9	1631900
Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.	Index 2.

TABLE A.

uation of Second Differences, for correcting the approximate Mean Time at Greenwich corresponding to a computed Lunar Distance.

Portion of Time.		Difference of Propor. Logarithms in the Nautical Almanac.																Portion of Time.	
h. m.	h. m.	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	h. m.	h. m.
		s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.		
0.0	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	3.0
0.10	2.50	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	0.10	2.50
0.20	2.40	0	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4	0.20	2.40
0.30	2.30	0	1	1	2	2	2	2	3	3	3	4	4	5	5	5	6	0.30	2.30
0.40	2.20	0	1	1	2	2	3	3	3	4	4	5	5	6	6	6	7	0.40	2.20
0.50	2.10	1	1	2	2	3	3	4	4	5	5	5	6	6	7	7	8	0.50	2.10
1.0	2.0	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	1.0	2.0
1.10	1.50	1	1	2	2	3	4	4	5	5	6	6	7	8	8	9	10	1.10	1.50
1.20	1.40	1	1	2	3	3	4	4	5	6	6	7	7	8	9	9	10	1.20	1.40
1.30	1.30	1	1	2	3	3	4	4	5	6	6	7	8	8	9	9	10	1.30	1.30

Portion of Time.		Difference of Propor. Logarithms in the Nautical Almanac.																Portion of Time.	
h. m.	h. m.	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	h. m.	h. m.
		s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.		
0.0	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	3.0
0.10	2.50	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	4	0.10	2.50
0.20	2.40	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	0.20	2.40
0.30	2.30	6	7	7	7	8	8	8	9	9	9	10	10	10	11	11	12	0.30	2.30
0.40	2.20	8	8	9	9	10	10	10	11	11	12	12	13	13	13	14	14	0.40	2.20
0.50	2.10	9	9	10	10	11	12	12	13	13	14	14	15	15	16	16	17	0.50	2.10
1.0	2.0	10	10	11	12	12	13	13	14	14	15	16	16	17	17	18	18	1.0	2.0
1.10	1.50	11	11	12	12	13	14	14	15	15	16	17	17	18	18	19	19	1.10	1.50
1.20	1.40	11	12	12	13	14	14	15	15	16	17	17	18	19	19	20	20	1.20	1.40
1.30	1.30	11	12	12	13	14	14	15	16	16	17	18	18	19	19	20	21	1.30	1.30

Portion of Time.		Difference of Propor. Logarithms in the Nautical Almanac.																Portion of Time.	
h. m.	h. m.	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	h. m.	h. m.
		s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.		
0.0	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	3.0
0.10	2.50	4	5	5	5	5	5	5	6	6	6	6	6	6	6	6	7	0.10	2.50
0.20	2.40	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	0.20	2.40
0.30	2.30	12	12	13	13	13	14	14	14	14	15	15	16	16	16	17	17	0.30	2.30
0.40	2.20	15	15	16	16	16	17	17	18	18	19	19	19	20	20	21	21	0.40	2.20
0.50	2.10	17	17	18	19	19	20	20	21	21	22	22	23	23	24	24	25	0.50	2.10
1.0	2.0	19	19	20	21	21	22	22	23	23	24	24	25	26	26	27	27	1.0	2.0
1.10	1.50	20	21	21	22	22	23	24	25	25	26	27	27	28	29	29	30	1.10	1.50
1.20	1.40	21	21	22	23	23	24	25	25	26	26	27	28	28	29	30	31	1.20	1.40
1.30	1.30	21	22	23	23	24	24	25	25	26	27	27	28	29	29	30	31	1.30	1.30

Remark.—The Equation, answering to any given portion of time and difference the proportional Logarithms, is to be applied by *addition* to the approximate at Greenwich, when the proportional Logarithms in the Nautical Almanac : *decreasing*; but by *subtraction* when they are *increasing*.—The principles and mode of computation relative to the above Table are given in the explanatory titles 80 and 81, beginning at page 336 of the first Volume.—This Table is more extensive than that which is given in the Ephemeris.

TABLE B.				TABLE C.			
Reduction of Latitude on account of the <i>oblate</i> spheroidal figure of the Earth; or to reduce the Geographical to the Geocentrical Latitude.				Logarithmical Radius of the Earth for reducing the Moon's horizontal parallax on account of the <i>oblate</i> spheroidal figure of the Earth.			
Geograph. Latitude.	Reduction.	Geograph. Latitude.	Reduction.	Reduced Latitude.	Logarithm of the Radius.	Reduced Latitude.	Logarithm of the Radius.
0	0. 0	46	11. 17	0	10.000000	46	9.999261
1	0.24	47	11.16	1	10.000000	47	9.999236
2	0.47	48	11.14	2	9.999998	48	9.999211
3	1.11	49	11.11	3	9.999996	49	9.999186
4	1.34	50	11. 7	4	9.999993	50	9.999162
5	1.58	51	11. 3	5	9.999989	51	9.999137
6	2.21	52	10.57	6	9.999984	52	9.999113
7	2.44	53	10.51	7	9.999979	53	9.999089
8	3. 7	54	10.44	8	9.999972	54	9.999065
9	3.29	55	10.37	9	9.999965	55	9.999042
10	3.52	56	10.28	10	9.999957	56	9.999019
11	4.14	57	10.19	11	9.999948	57	9.998996
12	4.36	58	10. 9	12	9.999938	58	9.998973
13	4.57	59	9.58	13	9.999928	59	9.998951
14	5.18	60	9.47	14	9.999916	60	9.998929
15	5.39	61	9.34	15	9.999904	61	9.998908
16	5.59	62	9.22	16	9.999891	62	9.998887
17	6.19	63	9. 8	17	9.999878	63	9.998867
18	6.38	64	8.54	18	9.999863	64	9.998847
19	6.57	65	8.39	19	9.999848	65	9.998828
20	7.15	66	8.23	20	9.999833	66	9.998809
21	7.33	67	8. 7	21	9.999816	67	9.998791
22	7.51	68	7.51	22	9.999800	68	9.998773
23	8. 7	69	7.33	23	9.999782	69	9.998756
24	8.23	70	7.15	24	9.999763	70	9.998740
25	8.39	71	6.57	25	9.999744	71	9.998724
26	8.54	72	6.38	26	9.999725	72	9.998709
27	9. 8	73	6.19	27	9.999705	73	9.998695
28	9.22	74	5.59	28	9.999685	74	9.998682
29	9.34	75	5.39	29	9.999664	75	9.998669
30	9.47	76	5.18	30	9.999643	76	9.998657
31	9.58	77	4.57	31	9.999621	77	9.998646
32	10. 9	78	4.36	32	9.999600	78	9.998636
33	10.19	79	4.14	33	9.999577	79	9.998625
34	10.28	80	3.52	34	9.999553	80	9.998617
35	10.37	81	3.29	35	9.999530	81	9.998609
36	10.44	82	3. 7	36	9.999506	82	9.998601
37	10.51	83	2.44	37	9.999482	83	9.998595
38	10.57	84	2.21	38	9.999458	84	9.998589
39	11. 3	85	1.58	39	9.999434	85	9.998585
40	11. 7	86	1.34	40	9.999410	86	9.998581
41	11.11	87	1.11	41	9.999385	87	9.998578
42	11.14	88	0.47	42	9.999360	88	9.998575
43	11.16	89	0.24	43	9.999335	89	9.998574
44	11.17	90	0. 0	44	9.999311	90	9.998574
45	11.17			45	9.999286		

From the given latitude subtract the equation answering thereto in Table B, the result will be the reduced or geocentric latitude with which enter Table C, and take out the corresponding logarithmic radius of the earth. Now, to this add the log. time of the moon's horizontal parallax, or the common logarithm of the *seconds* therein: the sum, abating 10 in the index, will be the log. sine, or the common logarithm, as the case may be, of the moon's horizontal parallax reduced to the given time and place agreeably to the oblate spheroidal figure of the earth.—See the Explanatory Articles marked 82 and 83 in the first Volume, between pages 337 and 341.

TABLE LVIII.

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Latitudes and Longitudes of the principal Sea Ports, Islands, Capes, Shoals, Rocks &c., in the known World, deduced from the latest and most approved Authorities; with the time of High Water, at the full and change of the Moon, at all places where it is known.

The Longitudes are reckoned from the Meridian of Greenwich.

Names of Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
COAST OF ENGLAND FROM LONDON TO SCILLY, AND THENCE TO THE ISLE OF MAN.				WolfRock 49.55.45N 5.48. 0W Laud's End..... 50. 4.10 5.41.45 4.30			
Scilly I.				St. Agnes' Light .. 49.53.37 6.19.23 4.40 St. Mary's Light .. 49.54.33 6.17. 0 4.40 St. Martin's 49.58. 3 6.14.39 4.40			
The Seven Stones .. 50. 2.15 6. 6. 0 Cape Cornwall 50. 8. 0 5.41. 0 4.25 St. Ives' Bay 50.13.10 5.28. 0 4.30 St. Agnes, Beacon .. 50.18.27 5.11.56 Trevoze Head..... 50.32.57 5. 0.54 Padstow 50.34.30 4.54.30 5. 0 Tiutagel Head 50.40. 0 4.45. 0 Hartland Point 51. 1.22 4.30.26 6. 0 Mort Point 51.11.30 4.12.30 Lundy Isle 51. 9.47 4.38.28 5.15 Flatholm Light ... 51.22.33 3. 6.25 6.40 Bristol, Cathedral .. 51.27. 6 2.35.29 6.45 Nash Point..... 51.25. 0 3.32.30 Mumbles Lighthou. 51.34. 0 3.57.20 Worms Head 51.33.56 4.18.56 Caldy Island 51.37. 0 4.40. 0 6. 0 St. Gowan's Head .. 51.36. 0 4.57. 0 5.30 St. Ann's Lights ... 51.40.59 5. 9.19 Small's Lighthouse 51.43.18 5.38.54 5.50 St. David's Head .. 51.55. 0 5.17. 0 6. 0 Strumble Head 52. 1. 0 5. 7. 0 Dinas Point 52. 2. 0 4.53. 0 Cardigan Harbour .. 52. 7. 0 4.42. 0 7. 0 CardiganIsle,high- est point } 52. 7. 53 4.40.27 Aberistwith..... 52.24.30 3.57.30 7.30 Barnmouth 52.41. 0 3.54.30 8. 0 Bardsey Island 52.44. 0 4.38.30 8.15 Brachy Pool Head .. 52.46.30 4.37. 0 HolyHead,Mount. } 53.18.51 4.39.27 10. 0 Signal Staff } Skerries Light 53.24. 0 4.32.30 9.45 Point Linas Light .. 53.24. 0 4.11.30 Great Ormes Head 53.20. 0 3.49.30 10.30 Point of Air, Light 53.21.28 3.18.35 Liverpool, St. Paul's 53.24.40 2.58.55 11. 0 Formby Point..... 53.32.34 3. 5. 2 10.25 Lancaster Steeple .. 54. 3. 8 2.47.41 11.15 Selker Rock 54.16.30 3.27. 0 St. Bees Head,Light 54.30.55 3.37.24 11. 0 Whitehaven,Windm 54.32.50 3.34.56 11.15 Carlisle 54.35.30 2.54. 0 12. 0							
West Coast of England.				Air Point..... 54.25.30 4.22.30 10.30 Douglas 54. 9. 0 4.28.30 10.30 Castle Town 54. 3.30 4.39.30 10.30 Calf of Man 54. 2. 0 4.48.30 10.30			
Is. of Man.				Ross Head, Scotland 54.47. 0 4. 6. 0			

LATITUDES AND LONGITUDES.

of Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
	° ' "	° ' "	h m		° ' "	° ' "	h m
th Light ..	55. 1.21 N	1.24.31 W	3. 0	Hag's Head	53. 0. 0 N	9.23. 0 W	
ool Steeple	54.41.49	1.10.31	3.45	Blk.Hd.Galway Bay	53.10.30	9.11. 0	4.30
s,entrance	54.38. 0	1. 5. 0	3.30	Galway	53.16.30	8.53. 0	
.....	54.33. 0	1.20. 0	4.30	North Arran Is- }	53. 9. 0	9.44. 0	
.....	54.29. 0	0.37. 0	3.45	land, West end }			
ood's Bay	54.26. 0	0.18. 0	3.45	Skird Rocks	53.16.30	9.56. 0	
ugh	54.18. 0	0.24. 0	4.30	Sline Head.....	53.27. 0	10.12. 0	5.15
g	54.14. 0	0.15. 0	4.30	Shark Island.....	53.38. 0	10.17. 0	
ugh Head	54. 8. 0	0. 2.30	4.30	Ennis, Turk Island	53.45. 0	10. 7. 0	
ghts.....	53.57.13	0.12.12 E	5.15	Clare Island Light	53.52. 0	9.58. 0	
l Tower ..	52.46.52	0.25. 4	6. 0	Achill Head	54. 1. 0	10.12. 0	6. 0
wsing	53.30. 0	0.55. 0		Black Rock	54. 7. 0	10.17. 0	
's Bank ..	53.33. 0	1.24. 0		Urris Head, }	54.21. 0	10. 2. 0	6. 0
Light....	53.18. 0	0.55. 0	7.30	Broad Haven.. }			
wsing	53.18. 0	0.34. 0		3 Tuns Rocks off do.	54.25.30	9.48. 0	6. 0
inner Bank	53. 9. 0	1.24. 0	6.45	Down Patrick Head	54.23. 0	9.22. 0	
Middle....	53.10. 0	1.54. 0	7. 0	Killala	54.16. 0	9.17. 0	
nam Shoals	53. 2.30	1.10. 0		Sligo	54.21. 0	8.34. 0	6.45
knowl	52.56. 0	2.17.30	12. 0	Ennis Murray Island	54.31. 0	8.45. 0	
ight	52.55.30	1.20. 0		Donnegal	54.43. 0	8.10. 0	6.30
.....	52.56.20	1.20.30	9. 0	Tillen Head	54.43. 0	8.52. 0	
ugh Lights	52.49. 0	1.33. 0	6.30	Douras Head	54.53. 0	8.40. 0	
n Ness Lts.	52.43.30	1.42. 0	8.15	Arranmore l., N. end	55. 2. 0	8.37. 0	
h	52.36.40	1.43.35	8.45	Bloody Foreland ..	55.11. 0	8.18. 0	
Lights....	52.29. 0	1.46. 0		Tory l., N.W. point	55.18. 0	8.16. 0	
d	52.20. 0	1.39.30	9. 0	Horn Head.....	55.15. 0	8. 1. 0	
gh Knapps	52. 7.30	1.41.30	10.45	Melmore Head	55.17. 0	7.48.30	
s Light ..	52. 5. 0	1.34.14	11. 0	Dunaff Head,.... }	55.18.30	7.33. 0	7.30
Langd. Ft.	51.56.18	1.19. 4	11.30	Loch Swilly .. }			
COAST OF IRELAND.				Mullin Head	55.24. 0	7.24.30	
ar.....	51.25. 0 N	9.29. 0 W	4.30	Ennistraul Light..	55.27. 0	7.14. 0	
ock.....	51.22.30	9.36. 0		Inishone Head	55.14. 0	6.54.30	
en	51.30. 0	9.40. 0	3. 0	Londonderry	54.59.28	7.14.49	6. 0
lead	51.29. 0	9.46. 0	3. 0	Giant's Causeway..	55.15.30	6.24. 0	
lead, .. }	51.33.30	9.51. 0	3.45	Racklin, l. W. point	55.19. 0	6.13.30	9.30
Bay .. }				Fair Head	55.15. 0	6. 3.30	9. 0
Rocks ..	51.31.30	10. 6. 0		Tor Head	55.13.30	5.58.30	
e, Tower..	51.35. 0	10.14. 0	3.30	Maid's Rocks	54.57. 0	5.39. 0	
c	51.38. 0	10.13. 0		Black Head	54.46. 0	5.39. 0	
c	51.37.30	10.12. 0		Carriekfergus	54.43. 0	5.49.30	10.30
id, }	51.43. 0	10. 4. 0	3.30	Belfast	54.35. 0	5.57. 0	10.30
re Bay .. }				Mew Island Light..	54.40.30	5.24. 0	
lead, do..	51.49. 0	10. 5. 0	3.30	South Rock Light..	54.21. 0	5.24. 0	
ids	51.49. 0	10.10. 0		Dundrum	54.13. 0	5.48.30	
ad	51.52. 0	10.15. 0		Dundalk.....	54. 0. 0	6.20. 0	10.45
i Rock ..	51.51.30	10.29. 0		Clougher Head	53.50. 0	6.10.30	
ock	51.53. 0	10.23. 0		Drogheda Bar	53.44.30	6.12. 0	10.45
DingleBay	51.59. 0	10.21. 0	3.30	St. Patrick's Island	53.35.30	6. 2.30	
Head, do.	52.13. 0	10.24. 0	3.30	Lambay Island .. }	53.30.12	6. 0.12	
k	52. 7. 0	10.36. 0		Knockerb. Hill }			
Island ..	52. 9. 0	10.31. 0	3.30	Howth Head Light	53.22. 0	6. 3. 0	
locks	52.10. 0	10.33. 0		Dublin Pier Lightho.	53.21.13	6. 5.13	9.30
skett, .. }	52.11. 0	10.29. 0	3.40	Dublin Observatory	53.23.13	6.20.30	
id				Wicklow Lights ..	52.58.22	6. 0.21	9. 0
skar	52.14. 0	10.29. 0		Arklow	52.49. 0	6. 6.30	8.15
r Head ..	52.19. 0	10.19. 0		Glascarrick	52.37.30	6.10.30	
Head	52.23. 0	10. 6. 0		Wexford Harbour..	52.22. 0	6.19. 0	7.30
ad, }	52.30. 0	9.54. 0	4.30	Carnsore Point....	52.11. 0	6.18. 0	
n Mouth }				Tusker Rock.....	52.12. 0	6. 7.30	6.30
id, do....	52.37. 0	9.54. 0	4.30	Saltees Rocks	52. 6. 0	6.36. 0	5.40
.....	52.42. 0	8.41. 0	6.30	Hook Light	52. 5. 0	6.56.30	
.....	52.51. 0	9. 2. 0		Waterford	52.13. 0	7.10. 0	5.30

LATITUDES AND LONGITUDES.

		Names of Places.		Latitude.		Longitude.		high water			Names of Places.		Latitude.		Longitude.		high water			
				°	'	°	'	"					°	'	°	'	"			
South Coast of Ireland.	Tramore.....	52.	7.	0	N	7.	11.	0	W			The Naze	57.	57.	50	N	7.	3.	15	E
	Dungarvan	52.	4.	0		7.	38.	30		4. 30	Norway.	Christian Sand	58.	8.	4		8.	3.	0	
	Ram Head	51.	55.	0		7.	40.	0		Arendad		58.	27.	0		8.	51.	20		
	Youghall	51.	56.	0		7.	48.	30		Frederickavern....		58.	59.	0		10.	7.	30		
	Dog's Nose	51.	48.	0		8.	16.	0		Ferder Light		59.	3.	0		10.	36.	0		
	Cork Quay at Cove	51.	50.	50		8.	16.	30		Agero Isle, centre..		59.	2.	35		10.	57.	0		
	Kinsale Light	51.	35.	0		8.	29.	0		Christiana		59.	55.	0		10.	48.	0		
	Seven Heads	51.	32.	30		8.	42.	0		Frederickstadt		59.	12.	0		11.	1.	30		
	Dundedy Head	51.	32.	0		8.	56.	0		4. 0										
	Ross	51.	35.	0		8.	59.	0				Stromstadt	58.	55.	30		11.	12.	0	
Stags off Toe Head	51.	27.	0		9.	10.	0			Salö Isle, Lightho.		58.	21.	0		11.	15.	30		
Baltimore	51.	27.	0		9.	20.	0		3. 45		Paternosters	57.	55.	0		11.	27.	0		
COASTS OF LAPLAND AND NORWAY FROM NOZA ZEMBLA TO THE NAZE.																				
White Sea.	Nova Zembla, N.pt.	78.	5.	0	N	76.	15.	0	E		Sweden.	Falkenburg	56.	53.	54		12.	30.	15	
	Weigates Straits ..	70.	50.	0		57.	45.	0		Halmstadt		56.	39.	45		12.	52.	0		
	Cape Candinose ..	68.	42.	0		44.	35.	0		Laholm		56.	32.	38		13.	1.	0		
	Morshom I., S. point	66.	40.	0		43.	27.	0		Wadero I., S. end..		56.	26.	0		12.	35.	0		
	Cape Bona Fortuna	66.	31.	0		42.	54.	0		Engelholm		56.	14.	20		12.	52.	15		
	Blue Point	65.	26.	0		39.	54.	0		Koll Light		56.	18.	0		12.	27.	32		
	Archangel	64.	34.	0		40.	43.	5		6. 0		Helsingburg	56.	2.	55		12.	43.	15	
	Cape Donega	65.	8.	0		36.	47.	0				Landskrone	55.	52.	27		12.	51.	1	
	Onega	63.	54.	0		37.	58.	0				Lunden Tower	55.	42.	46		13.	12.	42	
	Cross Island	66.	29.	0		40.	20.	0		4. 15		Malmo	55.	36.	37		13.	1.	19	
Coasts of Norway and Layland.	Cape Orlognose ..	67.	15.	0		41.	15.	30			Zealand.	Falsterbo Light....	55.	23.	4		12.	49.	45	
	Lambasche Point ..	67.	52.	0		40.	40.	0				Kioge	55.	27.	0		12.	12.	0	
	Cape Sweetnose....	68.	12.	0		39.	46.	0		12. 0		Copenhagen	55.	41.	4		12.	35.	6	
	Nagel Island	68.	25.	0		37.	35.	0				Elseneur	56.	2.	17		12.	38.	2	
	Kilduin, I., N. point	69.	10.	0		33.	50.	0				Cronenburg Light..	56.	2.	30		12.	37.	25	
	Wardhuys	70.	22.	36		31.	7.	0		4. 0		Nakke Head Lights	56.	6.	30		12.	21.	30	
	North Cape	71.	10.	0		26.	0.	45		3. 0		Nykoping	55.	55.	0		11.	40.	0	
	Altengaard	69.	55.	0		23.	4.	15				Callundburg	55.	41.	0		11.	6.	0	
	Werro Island	67.	42.	0		11.	25.	0				Korsar Lights	55.	20.	0		11.	9.	0	
	Drontheim	63.	25.	50		10.	23.	25		2. 15		Wordingburg	55.	1.	0		11.	57.	30	
Coasts of Norway and Layland.	Christian Sound ..	63.	7.	0		7.	42.	0			Cattégat.	Huen I., Uraniberg	55.	54.	38		12.	42.	59	
	Rondoe I., Lightho.	62.	24.	30		5.	35.	30				Amag I., Drago....	55.	35.	0		12.	41.	30	
	Askwold	61.	22.	0		5.	7.	30				Haselo Island	56.	12.	0		11.	40.	0	
	Bergen Castle	60.	24.	0		5.	20.	0				Anholt Light	56.	44.	20		11.	38.	51	12.
	Bommel I., S. end..	59.	34.	0		5.	10.	0				Little Middle Ground	56.	57.	0		11.	59.	0	
	Stavanger	58.	58.	30		5.	45.	0				Lessoe Isle, E. end	57.	19.	0		11.	10.	40	
	Great Wylingsoe, Lt.	59.	4.	0		5.	21.	30				Lessoe Isle, W. end	57.	15.	0		10.	52.	30	
	Jeddern Reef	58.	45.	0		5.	26.	0				Trindelen Rock....	57.	25.	30		11.	13.	30	
	Lister Island	58.	6.	0		6.	33.	30												
	The Naze	57.	57.	50		7.	3.	15												
CATTEGAT AND SOUND.																				
Jutland.	Scaw Light	57.	43.	44	N	10.	37.	30	E	12. 0	Danish Isles.	Funen Odenset	55.	24.	30	N	10.	22.	0	E
	Fladstrand	57.	27.	3		10.	33.	30				Lanland Rudkop....	54.	56.	0		10.	44.	0	
	Sebye	57.	20.	0		10.	33.	0				Areo, Kiop.....	54.	53.	30		10.	26.	0	
	Aalborg	57.	2.	32		9.	56.	41				Alsen Sonderborg ..	54.	54.	59		9.	47.	13	
	Grena	56.	24.	47		10.	53.	59				Laaland Naskou ..	54.	51.	0		11.	15.	0	
	Aarhuys	56.	9.	35		10.	14.	5				Falster Nykoping ..	54.	47.	0		11.	54.	30	
	Apeurade	55.	2.	57		9.	26.	38				Moen, Stege	55.	0.	0		12.	19.	0	
	Flensburg	54.	47.	18		9.	27.	40				Fermeren, Borge ..	54.	27.	30		11.	17.	0	
Sleswick	54.	31.	27		9.	33.	57				Hadersleben	55.	15.	15		9.	30.	49		

TABLE LVIII.

015

LATITUDES AND LONGITUDES.

of Places.	Latitude.			Longitude.			high water
	°	'	"	°	'	"	
g	55.22.	0N.		13.11.	0E.		
amn	55.33.	27		14.20.	45		
.....	55.55.	30		14.16.	20		
n	56.6.	57		15.33.	0		
oint	56.5.	0		15.50.	30		
.....	56.40.	30		16.26.	15		
rk	57.44.	50		16.40.	15		
ing	58.29.	30		16.20.	0		
.....	58.45.	30		17.3.	0		
.....	58.53.	30		17.33.	0		
Light	58.43.	56		17.52.	0		
n	59.20.	31		18.3.	30		
.....	54.19.	43		10.8.	18		
.....	53.51.	18		10.40.	52		
.....	53.51.	30		11.39.	0		
.....	54.3.	0		12.17.	0		
id	54.28.	0		12.35.	30		
ight	54.28.	0		13.12.	30		
.....	54.19.	0		13.32.	15		
.....	53.53.	0		14.5.	0		
.....	53.48.	0		14.44.	0		
.....	53.23.	0		14.34.	0		
.....	53.56.	0		14.55.	30		
.....	54.7.	0		15.47.	0		
ide	54.22.	0		16.29.	30		
it	54.37.	30		18.47.	30		
.....	54.20.	48		18.38.	5		
.....	54.33.	39		19.52.	30		
g	54.42.	12		20.29.	15		
rt Lights	54.52.	0		19.54.	30		
.....	55.42.	15		21.8.	3		
.....	56.31.	36		20.55.	20		
.....	57.25.	0		21.26.	30		
.....	57.35.	0		21.38.	0		
s Lights	57.46.	0		22.30.	0		
nd, Light	57.48.	0		23.6.	30		
.....	56.57.	1		24.7.	45		
.....	58.21.	1		24.19.	30		
perness	59.6.	0		22.32.	0		
Point	58.56.	1		22.9.	15		
ner Ort	58.39.	0		22.28.	0		
ids Ort	58.32.	0		21.50.	0		
ive Ort.Lt	57.56.	0		22.0.	30		
isburg	58.15.	19		22.27.	45		
ndo	58.26.	0		19.18.	0		
end	57.56.	0		19.28.	30		
N. E. end	57.51.	0		19.6.	30		
Wisby	57.39.	15		18.26.	30		
Hoberg	56.56.	0		18.11.	0		
th end	57.22.	20		17.6.	30		
olms Slott	56.52.	0		16.37.	0		
id Light	56.12.	40		16.24.	30		
.....	55.19.	0		15.15.	30		
N.W. end	55.18.	0		14.48.	30		
Hasle	55.10.	0		14.47.	0		
S. E. end	54.58.	0		15.14.	0		
Svanike	55.8.	0		15.16.	0		
Names of Places.							
Latitude.							
Longitude.							
high water							
Rugen, north end	54.40.	0N.		13.30.	0E.		
Rugen Bergen	54.24.	30		13.32.	0		
Do.S. end, new Deep	54.15.	30		13.52.	0		
Wolgast	54.3.	0		13.50.	0		
Greifswald	54.4.	40		13.33.	15		
GULFS OF BOTHNIA AND FINLAND.							
Odensholm Light							
Great Røge Light							
Sørep Head Light							
Nargen Island N.pt							
Revel							
Koskar Light							
Stone Skar							
Little Titters Island							
Great Titters Island							
Lavenscar, N. end							
Sea Scar Light							
Narva							
Dolgenos							
Tolbecon Light							
Cronstadt							
Petersburg							
Hango Beacon							
Helsingfors							
Borgo							
Lovisa							
Orrengrunds Beacon							
Hogland Island Lts.							
Aspo							
Fredericksbam							
Wiburg							
Styrs Udden							
Uto Lighthouse							
Abo							
Wasa							
Tornea							
Gefle							
Coasts of Denmark, Germany, Holland and Netherlands.—From the Scaw Light to Calais.							
Scaw Light							
Robsnout							
Oyster Head							
Holmen							
Tonningen							
Point Horn							
Heligoland Lt. hou.							
Riv. Elbe, Red buoy							
Nework							
Cuxhaven Lt. house							
Glukstadt							
Stade							
Hamburg							
Bremorlehe							
Bremen							

LATITUDES AND LONGITUDES.

Names of Places.		Latitude.		Longitude.		high water	Names of Places.		Latitude.		Longitude.		
		°	'	°	'	h			°	'	°	'	
Holland.	Emden	53.	22. 3 N	7.	11. 1 E	12. 0	English Islands.	Pele Island	49.40.22 N	1.35. 0 W			
	Gottingen	51.	31. 50	9.	56. 30			Cape La Hogue ..	49.43.33	1.55.30			
	Harlingen	53.	10. 32	5.	24. 47			Alderney Isle, N. end	49.45.47	2.12.30			
	Texel, South point	53.	2. 0	4.	33. 0	7. 45		Casquet Lights	49.43.30	2.25.10			
	Alkmaar	52.	38. 2	4.	44. 45			Guernsey I., St. Pierre	49.25.33	2.33. 0			
	Amsterdam	52.	22. 17	4.	53. 15	3. 0		Sark Island, W. end	49.24.32	2.23.45			
	Haerlem	52.	22. 56	4.	38. 19	9. 0		Jersey Isle,	49.15.32	2.13.47			
	Leyden	52.	9. 30	4.	29. 13			Cape Grossness }					
	The Hague	52.	4. 50	4.	18. 47	8. 15		Jersey I., St. Aubin	49.12.59	2.10.44			
	Holland's Hook....	51.	56. 0	4.	0. 0	3. 0		Jersey I., St. Clements	49. 8.37	1.59.30			
Netherlands.	Rotterdam	51.	55. 22	4.	29. 11	3.30	Northern Coast of France.	Chausey Island	48.52. 0	1.50.30			
	Gocree Island	51.	46. 0	3.	53.30			St. Germain	49.13.15	1.35.30			
	Schouwen I. Light..	51.	39. 0	3.	37.30			Coutances	49. 2.54	1.26.33			
	Walcheren I., W. pt.	51.	32. 0	3.	25.30			Granville	48.50.16	1.35.57			
	Middleburg	51.	30. 6	3.	37.30			Avranche	48.41.23	1.21.22			
	Flushing	51.	26.42	3.	34.57	1. 0		Mount St. Michael	48.38.14	1.30.24			
	Antwerp	51.	13.16	4.	24.10			Pontorson	48.33.18	1.31.32			
	Sluys	51.	18.35	3.	23. 9			Cancalle	48.41. 0	1.51.30			
	Bruges	51.	12.33	3.	13.33			St. Malo	48.39. 3	2. 1.11			
	Ostend	51.	13.57	2.	55. 8	0.20		La Conchee Tower	48.41. 2	2. 3.15			
	Newport	51.	7.54	2.	45.15		Dinant	48.27. 6	2. 2. 5				
	Furnes	51.	4.23	2.	39.51		Cape Frehel Light	48.41.10	2.18.36				
	Dunkirk	51.	2. 9	2.	22.37	11.45	St. Brieuc	48.31. 2	2.43.55				
	Berg	50.	57.43	2.	26.26		Brehat Island	48.50. 0	2.56. 0				
	Gravelines	50.	59.10	2.	7.50	11.45	Tregueir	48.46.54	3.13.34				
	Calais	50.	57.32	1.	51.16	11.30	Morlaix	48.35. 0	3.53.30				
	COASTS OF FRANCE, SPAIN AND PORTUGAL.												
	Northern Coast of France.	Calais	50.	57.32 N	1.	51.16 E	11.30	Western Coast of France.	St. Pol de Leon	48.41. 0	4. 0. 0		
		Cape Grizness	50.	52.30	1.	34.30	11. 0		Blanche Rock	49. 1.25	3.58. 0		
		Ambleteuse	50.	48.13	1.	36. 1	11. 0		Isle de Bas	48.46. 0	4. 2. 0		
Boulogne		50.	43.37	1.	36.59	10.30	St. Anthony's Lights		48.40. 0	4.29. 0			
Etaples		50.	30.44	1.	38.31	10.15	Ushant Light		48.28. 8	5. 3. 6			
Montreuil		50.	27.42	1.	45.47		Brest		48.23.14	4.28.45			
Rue		50.	16.30	1.	40. 0		St. Matthew's Light		48.19.34	4.45.39			
Le Croty		50.	12.52	1.	27.24		Point Ras		48. 1. 0	4.47. 0			
Abbeville		50.	7. 4	1.	49.58	10.30	Saint's Rocks		48. 5. 0	5. 5. 0			
St. Valery-sur-Somme		50.	11.21	1.	37.51	10.30	Point L' Abbe		47.49. 0	4.12. 0			
	Eu	50.	3. 0	1.	15.20		Quimper	47.58.29	4. 5.45				
	St. Quentin	49.	50.51	1.	22.37		Glenan Islands	47.44.30	4. 0.20				
	Dieppe Light	49.	55.34	1.	4.44	10.30	Quimperlay	47.52. 0	3.34. 0				
	Ailly Light	49.	55.17	1.	10.17		L' Orient	47.45.11	3.21. 2				
	St. Valery-en-Caux	49.	52.12	0.	41.25	10.15	Hennebon	47.48. 1	3.17.22				
	Fecamp	49.	45.24	0.	23. 3	10. 0	Port Louis	47.42.30	3.21.14				
	Cape de Caux	49.	41. 0	0.	11. 0		Gronais Isle	47.38. 4	3.26. 8				
	Cape de la Heve ..	49.	30.42	0.	3.30		Quiberon, S. point	47.26. 0	3. 4. 0				
	Havre de Grace....	49.	29.14	0.	6.38	10.30	Belle Isle, N. end ..	47.23. 0	3.14. 0				
	Harfleur	49.	30. 0	0.	11.30		Belle Isle, S. end ..	47.17.17	3. 4.45				
	Honfleur	49.	25.13	0.	14.14		Honat Island	47.23.32	2.56.42				
	Paris, Observatory	48.	50.14	2.	20.15		Hedie Island	47.20.46	2.51.16				
	Rouen	49.	26.27	1.	5.59	1. 0	Aurai	47.40. 4	2.49.37				
	Caen	49.	11.12	0.	21.38 W	10. 0	Vannes	47.39.26	2.45. 4				
	Bayeux	49.	16.34	0.	41.56		Goizande	47.19.39	2.26.21				
	Carentan	49.	18. 0	1.	15.30		Croisic	47.17.43	2.30.15				
	St. Marcou Island..	49.	29.52	1.	8.41		Painbeuf	47.17.15	2. 1.31				
	Cape Barfleur Light	49.	40.21	1.	15.15	7.30	Nantes	47.13. 6	1.32.44				
	Cherbourg	49.	38.31	1.	37. 3	7.30	Bourgneuf	47. 2.28	1.51.24				
							Le Pillier	47. 2.32	2.21. 5				
						Noirmoutier I., S. pt.	47. 0. 5	2.14. 7					
						Bouin Island	46.58.30	2. 0.27					

LATITUDES AND LONGITUDES.

Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
	° ' "	° ' "	h m		° ' "	° ' "	h m
u, West } 46. 42. 26 N	2. 19. 50 W	3. 0	Coast of Portugal.	St. Ubes	38. 33. 0 N	8. 53. 30 W	
.....	46. 40. 0	1. 51. 0		Sines Castle	37. 57. 30	8. 52. 42	
oals	46. 30. 0	1. 47. 0		Cape St. Vincent ..	37. 2. 54	8. 59. 36	2. 15
ne	46. 15. 30	2. 21. 30		Lagos	37. 6. 0	8. 38. 3	2. 0
Lightho.	46. 14. 49	1. 33. 25		Cape Carbonera ..	37. 7. 0	8. 20. 0	
st. Martin	46. 12. 18	1. 21. 52		Faro, St. Antonio Ch.	36. 59. 24	7. 50. 48	
.....	46. 9. 21	1. 9. 40		Cape St. Maria	36. 55. 36	7. 49. 30	
.....	45. 56. 10	0. 57. 34		Point St. Antony ..	37. 9. 30	7. 19. 45	
nd Tower	46. 3. 0	1. 25. 0		Coast of Spain.			
.....	46. 1. 38	1. 10. 41					
Lightho.	45. 35. 15	1. 10. 23					
.....	44. 50. 14	0. 33. 59					
.....	44. 43. 0	1. 14. 0					
on	43. 45. 0	1. 26. 0	Coast of Spain.	Tarifa Island	36. 0. 30	5. 35. 15	
.....	43. 29. 15	1. 28. 26		Gibraltar, Europa pt.	36. 6. 40	5. 21. 45	12. 0
.....	43. 23. 0	1. 40. 0		Algesiras	36. 8. 0	5. 26. 12	
.....	43. 21. 36	1. 47. 15		NORTH COAST OF THE MEDITERRANEAN.			
ssages	43. 20. 10	1. 54. 45					
an	43. 19. 30	1. 58. 30	South and East Coasts of Spain.	Gibraltar, Europa pt.	36. 6. 40 N	5. 21. 45 W	
liaco	43. 28. 0	2. 49. 0		Malaga	36. 43. 30	4. 25. 2	
.....	43. 14. 30	2. 44. 0		Modril	36. 45. 0	3. 33. 30	
.....	43. 26. 50	3. 19. 35		Almeira	36. 51. 0	2. 31. 0	
.....	43. 28. 20	3. 40. 0		Cape de Gatt	36. 44. 0	2. 12. 50	
ambre	43. 25. 10	4. 11. 0		Cape Tinoso	37. 31. 0	1. 9. 0	
o	43. 28. 30	4. 43. 0		Carthage	37. 35. 50	1. 0. 21	
ar	43. 29. 40	4. 49. 50		Cape Palos	37. 37. 0	0. 41. 0	
res	43. 34. 0	5. 12. 50		Plana Isle	38. 10. 0	0. 29. 20	
.....	43. 35. 19	5. 35. 40		Alicante	38. 20. 41	0. 28. 35	
s	43. 42. 0	5. 46. 0	South and East Coasts of Spain.	Cape St. Martin ..	38. 47. 30	0. 10. 45 E	
o	43. 36. 0	6. 23. 0		Denia	38. 52. 0	0. 5. 15	
l	43. 41. 0	7. 17. 0		Valencia	39. 28. 45	0. 23. 3W	
.....	43. 43. 0	7. 29. 0		Cape Oropesa	40. 5. 33	0. 8. 25 E	
es	43. 47. 25	7. 34. 45		River Ebro, entrance	40. 42. 0	0. 57. 0	
Estaca	43. 48. 0	7. 36. 0		Tortosa Cathedral..	40. 48. 46	0. 33. 0	
gal	43. 46. 40	7. 49. 0		Tarragona	41. 8. 50	1. 15. 30	
.....	43. 34. 15	8. 22. 0		Barcelona, Mount- }	41. 24. 44	2. 9. 57	
.....	43. 29. 0	8. 15. 0		Joy Tower	41. 24. 44	2. 9. 57	
.....	43. 23. 30	8. 18. 35		Mataro	41. 32. 23	2. 26. 48	
drian	43. 21. 20	8. 47. 45	South Coast of France.	Cape de Tosa	41. 43. 0	2. 55. 0	
no	43. 11. 20	9. 11. 15		Palamos	41. 51. 10	3. 5. 0	
ana	43. 3. 45	9. 17. 30		Cape St. Sebastian	41. 53. 0	3. 9. 0	
terre	42. 54. 0	9. 16. 0		Bay of Roses	42. 16. 0	3. 7. 0	
bedo	42. 33. 30	9. 3. 35		Cape Creux	42. 19. 35	3. 20. 50	
l, N. point	42. 24. 0	8. 51. 0		Callioure	42. 31. 31	3. 5. 2	
.....	42. 13. 20	8. 33. 30		Perpignan	42. 42. 3	2. 54. 9	
iro	42. 4. 0	8. 48. 0		Cape Leucate	42. 54. 0	3. 6. 0	
ho,	41. 52. 30	8. 47. 0		Narbonne	43. 11. 22	3. 0. 22	
.....	41. 42. 36	8. 43. 30		Agde	43. 18. 40	3. 28. 10	
.....	41. 8. 54	8. 37. 18	South Coast of France.	Fort Brecon	43. 16. 0	3. 30. 0	
e Bar	40. 38. 24	8. 37. 54		Cette Lighthouse ..	43. 23. 37	3. 41. 5	
dego	40. 11. 54	8. 54. 6		Montpellier, Observy.	43. 36. 16	3. 52. 40	
.....	40. 12. 30	8. 24. 42		Aigues Mortes	43. 33. 58	4. 11. 22	
.....	40. 10. 0	8. 52. 0		Arles	43. 40. 31	4. 37. 47	
.....	39. 25. 0	9. 31. 20		Avignon	43. 57. 8	4. 48. 30	
.....	39. 21. 0	9. 25. 0		Aix	43. 31. 48	5. 26. 47	
œira	38. 46. 0	9. 30. 36		Marseilles, Observy.	43. 17. 49	5. 22. 15	
ck	38. 42. 24	9. 8. 30		La Ciotat	43. 10. 29	5. 37. 0	
servatory	38. 24. 54	9. 13. 24		Cape Sicie	43. 2. 0	5. 58. 0	
chel	38. 24. 54	9. 13. 24	2. 15	Toulon	43. 7. 9	5. 55. 41	
				Hieras	43. 7. 20	6. 7. 11	

TABLE LVIII.
LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.	Longitude.	high water		Names of Places.	Latitude.	Longitude.	high water
South Coast of France.	Porquerolles Citadel	42. 59. 48 N	6. 12. 15 E			Loretto	43. 27. 0 N	13. 35. 5 E	
	Levent Island	43. 2. 0	6. 30. 0			Ancona	43. 37. 54	13. 27. 7	
	Cape Taillar	43. 7. 0	6. 44. 0			Fano	43. 51. 0	12. 59. 53	
	Frejus	43. 25. 52	6. 44. 9			Pesaro	43. 55. 1	12. 53. 36	
	St. Tropez	43. 16. 27	6. 38. 44			Rimini	44. 3. 43	12. 32. 51	
	Cape Roux	43. 22. 0	7. 2. 0			Ravenna	44. 25. 5	12. 10. 51	
	Cannes	43. 33. 0	7. 9. 0			Comachio	44. 40. 27	12. 10. 2	
	Antibes	43. 34. 43	7. 7. 50			Venice, St. Mark's	45. 25. 32	12. 20. 59	
	St. Marguerite Isle	43. 31. 0	7. 3. 0			Trieste	45. 38. 8	13. 47. 8	
	Nice	43. 41. 16	7. 16. 37			Rovigno	45. 9. 0	13. 47. 0	
Genoa.	Villa Franche Light	43. 40. 20	7. 19. 30			Pola	44. 52. 16	13. 50. 4	
	Cape Melle	43. 57. 0	8. 8. 0			Fiume	45. 20. 10	14. 26. 22	
	Savona	44. 17. 0	8. 30. 0			Segna	45. 14. 0	14. 58. 0	
	Genoa	44. 25. 0	8. 58. 0			Zara	44. 9. 0	15. 29. 0	
	Rappallo	44. 21. 0	9. 16. 0			Cape Sesto	43. 34. 0	16. 7. 0	
	Point Venere	44. 5. 0	9. 45. 0			Ragusa	42. 39. 0	18. 6. 15	
	Spezia	44. 8. 0	9. 44. 0			Cattaro	42. 27. 0	18. 29. 0	
	Pisa, Observatory	43. 43. 11	10. 24. 0			Scutaria	41. 53. 0	19. 14. 0	
	Florence	43. 46. 41	11. 15. 45			Durazzo	41. 19. 30	19. 27. 25	
	Leghorn	43. 33. 5	10. 16. 45			Valona	40. 28. 20	19. 25. 45	
West Coast of Italy.	Vado, Tower	43. 25. 0	10. 23. 0			Cape Linguetta	40. 26. 0	19. 15. 0	
	Piombino	42. 55. 27	10. 31. 2			Butrinto	39. 43. 0	20. 16. 0	
	Cape Troy	42. 46. 0	10. 41. 0			Cape St. Nicholas	39. 24. 0	20. 26. 0	
	Cape Argental	42. 23. 25	11. 9. 39			Misolongi	38. 24. 0	21. 52. 0	
	Castiglione Fort	42. 45. 58	10. 52. 15			Lepanto	38. 16. 0	22. 1. 0	
	Civita Vecchia	42. 5. 24	11. 44. 15			Corinth	37. 53. 24	23. 2. 22	
	Ostia	42. 45. 0	12. 17. 0			Castel-Tornese	37. 53. 40	21. 10. 5	
	Rome, Roman Coll.	41. 53. 54	12. 29. 47			Coron	36. 47. 26	21. 58. 52	
	Cape Danso	41. 26. 0	12. 38. 0			Cape Matapan	36. 23. 20	22. 29. 30	
	Mount Cercello	41. 12. 0	13. 1. 0			Cape St. Angeli	36. 27. 0	23. 12. 0	
Gulf of Venice.	Gaeta	41. 15. 0	13. 38. 0			Athens	37. 58. 1	23. 46. 14	
	Naples	40. 50. 15	14. 15. 45			Negropont	38. 27. 0	23. 44. 0	
	Salerno	40. 44. 0	14. 46. 0			Cape Doro	38. 9. 30	24. 19. 45	
	Cape Licosa	40. 15. 0	14. 57. 0			Cape St. George	39. 25. 0	23. 17. 0	
	Policastro	40. 6. 0	15. 40. 0			Salonica	40. 38. 7	22. 56. 0	
	St. Euphemia	38. 55. 0	16. 32. 0			Cape Cassandra	39. 56. 0	23. 16. 0	
	Tropea	38. 36. 0	16. 7. 0			Mount Athos	40. 7. 0	24. 15. 0	
	Reggio	38. 7. 0	15. 55. 0			Contessa	40. 39. 0	23. 58. 0	
	Point Sacta	37. 51. 0	15. 58. 0			Lagos	40. 58. 42	25. 3. 36	
	Cape Spartivento	37. 55. 50	16. 3. 35			Cape Macri	40. 30. 0	25. 88. 0	
Gulf of Venice.	Cape Stillo	38. 23. 0	16. 55. 0			Saros	40. 36. 37	26. 42. 17	
	Catanzaro	38. 50. 0	16. 55. 0			Enos	40. 41. 58	25. 58. 44	
	Cape Colonne	39. 4. 0	17. 28. 0			Dardanelles, Old Cas.	40. 9. 8	26. 19. 30	
	Point Alice	39. 24. 0	17. 25. 0			Gallipoli	40. 25. 33	26. 37. 30	
	Taranto	40. 28. 0	17. 30. 0			Rodosto	40. 58. 34	27. 25. 31	
	Gallipoli	40. 2. 0	18. 10. 0			Heraclea	41. 1. 3	27. 54. 34	
	Cape St. Mary	39. 47. 30	18. 23. 20			Constanple, St. Soph.	41. 1. 27	28. 55. 15	
	Otranto	40. 9. 20	18. 29. 15			BLACK SEA, AND SEA OF ASOPH.			
	Brindisi	40. 39. 0	18. 8. 0			Ismail	45. 21. 0 N	28. 50. 15 E	
	Cape Cavallo	40. 43. 0	18. 14. 0			Akerman	46. 12. 0	30. 44. 0	
Gulf of Venice.	Monopoli	40. 55. 0	16. 58. 5			Odessa	46. 30. 22	30. 45. 22	
	Bari	41. 7. 0	17. 0. 0			Kherson	46. 38. 29	32. 32. 15	
	Monfredonia	41. 37. 0	16. 5. 0			Perckop	46. 8. 57	33. 42. 9	
	Viesti	41. 54. 0	16. 15. 0			Koslof	45. 11. 54	33. 22. 48	
	Tormoli	41. 58. 0	15. 6. 0			Sevastapol	44. 41. 0	33. 20. 0	
	Ortona	42. 18. 0	14. 27. 0			Kertch	45. 21. 19	36. 21. 21	
	Fermo	43. 10. 18	13. 41. 41			Yenicale	45. 22. 0	36. 33. 0	

LATITUDES AND LONGITUDES.

f Places.	Latitude.			Longitude.	high water			Names of Places.	Latitude.			Longitude.	high water		
	°	'	"	°	'	"	h		°	'	"	°	'	"	h
ia	45.11.	0	N	36.34.	0	E		Cape Batraca.....	32.15.	0	N	23.40.	0	E	
ck.....	47.12.	40		38.39.	0			Bomba Isle	32.22.	28		23.16.	57		
ide.....	41. 2.	41		39.28.	0			Cape Derne	32.46.	0		22.40.	0		
ssoun	41.11.	0		37.46.	0			Cape Razat.....	33. 4.	0		21.47.	51		
.....	42. 3.	10		35. 8.	45			Cape Bengazi	32. 7.	30		20. 1.	35		
o	41.46.	3		32.24.	24			Cape Carcorella ..	31.39.	0		19.20.	0		
.....	41.17.	51		31.27.	20			Cape Mezurat	32.25.	25		15. 9.	35		
COAST OF THE MEDITERRANEAN.								Cape Trajora.....	32.59.	0		13.22.	0		
.....	41. 0.	0	N	29. 0.	0	E		Tripoli	32.53.	40		13.11.	33		
ia	40.14.	0		29. 0.	0			Zerbi Isle, the town	33.54.	10		10.53.	25		
a Isle	40.37.	4		27.30.	50			Cape Gergis	33.57.	0		11.30.	0		
.....	39.45.	0		26. 5.	0			Cape Paul	35.10.	0		10.58.	0		
, before Troy	40.14.	30		26.27.	7			Cape Africa	35.30.	0		11. 6.	5		
ba.....	39.30.	15		25.51.	40			Susa	35.49.	0		10.25.	0		
ia	39.32.	0		26.48.	0			Cape Bon	37. 4.	45		11. 4.	15		
(centre of	32.25.	20		27. 6.	30			Tunis, Fondouc ..	36.47.	59		10.11.	15		
vu)	38.15.	0		26. 5.	0			Cape Carthage	36.55.	0		10.28.	0		
anco	37.50.	30		27.15.	0			Bizerta	37.17.	20		9.50.	35		
va Island, }	37.42.	0		26.48.	0			Cape Negro	37.12.	0		9. 7.	0		
ie town, }	36.42.	0		27.14.	30			Bona	36.48.	0		7.48.	45		
Mary	36.48.	0		28.11.	0			Cape Fierro	37. 2.	0		7.20.	0		
o	36.36.	0		29. 7.	0			Cape Bagaroni	37.11.	0		6.38.	0		
ice.....	36.22.	50		29. 8.	10			Cape Tedeles	36.57.	0		4.14.	3		
pes, N. Cape	36. 8.	0		29.30.	0			Cape Matifora	36.51.	10		3.12.	35		
iza Island	36.12.	0		30.26.	5			Algiers, Lighthouse	36.48.	36		3. 4.	55		
elidonia ..	36.52.	16		30.45.	3			Cape Tenis.....	36.34.	0		1.26.	0		
Pier Head..	36. 0.	50		32.51.	0			Cape Ferrat	35.54.	0		0.13.	0W		
amour	36. 7.	55		33.42.	40			Oran, Castle	35.44.	27		0.39.	24		
valiere	37. 1.	0		34.52.	0			Cape Falcon	35.47.	0		0.48.	0		
radash	36.32.	40		35.21.	26			Cape Fegalo	35.31.	0		1.10.	0		
etto, or }	36.35.	27		36.15.	15			Zaffarine Islands ..	35.12.	0		2.24.	0		
roon	35.37.	0		35.34.	0			Melilla	35.18.	15		2.56.	10		
ret	35.30.	30		35.47.	55			Cape Tres Forcas ..	35.28.	0		2.57.	0		
.....	36.11.	25		37.10.	15			Mostaza	35. 9.	0		4.32.	0		
.....	34.58.	0		35.54.	0			Tetuan	35.36.	0		5.24.	0		
.....	34.26.	25		35.51.	28			Ceuta, Fort	35.54.	10		5.17.	25		
.....	33.50.	0		35.30.	0			Tangier, Fort	35.40.	0		5.49.	0		
inco	32.54.	35		35. 6.	20			Cape Spartel	35.48.	30		5.55.	0		3. 0
armel	32.51.	10		34.59.	35			ISLANDS IN THE MEDITERRANEAN, GULF OF VENICE, AND ARCHIPELAGO.							
.....	32.32.	0		35. 0.	0			Alboran	35.57.	0	N	3. 0.	40W		
.....	32. 5.	25		34.46.	8			Fromenterra, ... }	38.42.	0		1.36.	0	E	
h, Fort	31.30.	0		34.36.	0			East point	38.37.	0		1.24.	0		
h	31. 5.	30		33.48.	25			Fromenterra, ... }	39. 2.	0		1.37.	0		
t	30.48.	28		31.59.	45			West point.....	38.50.	0		1.13.	0		
arlos,	31.25.	43		31.49.	30			Yvica, N. E. point..	39.55.	0		0.32.	0		
.....	31.36.	0		31.27.	0			Yvica, S. W. point..	39.55.	0		0.32.	0		
Tower	31.25.	0		30.28.	20			Colambretes	39.73.	0		3. 0.	20		
.....	31.19.	44		30.17.	16			Cabrera, the middle	39. 7.	30					
.....	30. 2.	21		31.18.	45			Cape Pollenza, .. }	39.57.	0		3.14.	0		
h, or	31.21.	0		30.39.	0			N. E. point.....	39.16.	0		3. 6.	0		
h's Island }	31.13.	5		29.55.	15			Cape Salini, S. point	39.42.	0		3.29.	0		
ia	31.11.	0		28.15.	0			Cape Pedro, E. point	39.33.	0		2.20.	0		
ras	31. 6.	20		27.20.	0			Dragon Island	39.34.	4		2.39.	15		
sland	31.22.	0		25.42.	0			Palma.....	40. 2.	45		3.52.	5		
meda	31.46.	15		25. 7.	30			Cape Bajoli	39.51.	10		4 18.	17		
Port	31.48.	0		25. 2.	0			Port Mahon, ... }	39.46.	30		4.21.	10		
so	32. 0.	0		24. 7.	0			Cape Mola							
abuco								Isle of Ayre							

TABLE LVIII.

LATITUDES AND LONGITUDES.

Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	hi wa
	° ' "	° ' "	A M		° ' "	° ' "	A
machitti ..	35. 23. 50 N	32. 57. 5 E		Ivory Coast. Cape 3 pts, mid. pt..	4. 55. 0 N	2. 2. 0 W	
or St ...	35. 6. 20	32. 16. 30		Dixcove Fort	5. 0. 0	1. 55. 0	
nes	34. 31. 30	33. 3. 20		Secondee	5. 5. 0	1. 45. 0	
a	34. 55. 0	33. 52. 0		St. Sebastian, Fort..	5. 7. 0	1. 33. 0	
go	34. 54. 30	33. 40. 45		Elmina Castle	5. 1. 38	1. 15. 12	
Castle				Cape Coast Castle..	5. 3. 45	1. 3. 0	3.
				Anamaboe	5. 8. 30	1. 1. 0	
				Kormantine Fort ..	5. 7. 58	0. 51. 0	
				Tantumquerry Pt..	5. 7. 0	0. 45. 0	
				Baracoe Point	5. 21. 30	0. 22. 0	
				Accarah	5. 30. 30	0. 12. 0	
				Ningo	5. 43. 0	0. 28. 0 E	
				Adda Castle	5. 48. 0	0. 44. 0	
				Cape St. Paul's	5. 44. 0	1. 7. 0	
				Quitta	6. 2. 0	1. 17. 0	
				Little Popoe	6. 12. 0	2. 2. 0	
				Whydah, British			
				Factory	6. 17. 30	2. 34. 30	
				Lagos	6. 20. 0	4. 12. 0	
				Formosa River	5. 43. 0	5. 25. 0	
				Cape Formosa	4. 25. 0	5. 59. 0	
				New Calabar River	4. 25. 0	7. 42. 0	
				Cameroons River ..	3. 45. 0	9. 35. 0	
				Cape St. John	1. 15. 0	9. 15. 0	
				Gabon River			
				Cape Clara	0. 25. 0	9. 20. 0	
				Cape Lopez	0. 59. 0 S	9. 17. 0	
				Low Point	2. 0. 0	9. 37. 0	
				River Seste	2. 25. 0	10. 24. 0	
				Cape Mayumba	3. 36. 0	11. 14. 0	
				Loango Bay	4. 36. 0	12. 20. 0	
				Cape Padaran ..	6. 14. 0	12. 40. 0	
				Congo River ..			
				Ambriz Bay	7. 56. 0	13. 15. 0	
				Dande	8. 38. 0	13. 47. 0	
				Cape Ledo	9. 48. 0	13. 28. 0	
				Novo Redondo	11. 20. 0	14. 5. 0	
				St. Phillip,	12. 33. 30	13. 33. 0	
				Benguela Bay ..			
				Cape Negro	16. 1. 0	11. 54. 0	
				Tigers Island, N. pt.	16. 29. 45	12. 3. 0	
				Cape Frio	18. 37. 30	12. 25. 0	
				Village	21. 54. 0	14. 40. 0	
				Walwich Bay	22. 54. 0	14. 40. 0	
				Ilea Point	23. 30. 0	14. 48. 0	
				Bird Island	24. 36. 0	14. 50. 0	
				Angra Pequena, ..	26. 36. 50	15. 16. 30	
				Pedestal Point. }			
				Cape Voltas	28. 42. 0	16. 29. 0	
				St. Helen's Bay, }	32. 40. 0	17. 53. 0	
				Cape St. Martin }			
				Saldanah Bay	33. 7. 0	17. 58. 0	
				Dassen Island	33. 24. 0	18. 3. 30	
				Table Bay, Robin Is.	33. 48. 0	18. 23. 0	
				Cape of Good Hope	34. 23. 40	18. 32. 15	3
				Cape Town	33. 56. 15	18. 28. 30	2
				False Cape	34. 25. 0	18. 52. 0	
				Simon's Bay Dock }	34. 9. 0	18. 22. 30	3
				Yard			
				Islands, Rocks, and Shoals in the North and So			
				Atlantic Oceans between the Hebrides of Scotlan			
				and the South Shetland Islands.			
				N. Atlantic. Lion's Bank	56. 40. 0 N	17. 45. 0 W	
				Rockall	57. 39. 0	13. 37. 0	
				Atkins Shoal	55. 18. 0	11. 15. 0	
				Chapel Rock	47. 28. 0	7. 30. 0	

LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.			Longitude.	high water				Names of Places.	Latitude.			Longitude.	big wat		
		°	'	"		°	'	"			°	'	"		°	'	"
North Atlantic.	Devil's Rocks	46.25.	0	N	13. 0.	0	W			Cape Verde Islands.	St. Nicholas, N. pt.	16.41.	0	N	24.24.	0	W
	Sisk's Shoal	40.43.	0		23.37.	0					St. Nicholas, E. pt.	16.34.	30		24. 3.	0	
	Gough's Rocks	40.25.	0		33. 0.	0					Salt Island, S. pt...	16.34.	25		23. 0.	0	
	Hammond's Rock..	36.45.	0		23.10.	0					Bonavista, Eng. road	16. 9.	0		22.57.	30	
	Steen Ground	32.45.	0		21.25.	0					Bonavista, N. pt. ..	16.13.	40		22.59.	30	
	Josna Rock	31.37.	0		23.45.	0					Mayo, South point	15. 4.	59		23. 8.	30	
											Mayo, the town....	15. 7.	30		23.17.	0	
	Bermuda Island, } St. George's Town }	32.22.	0		64.30..	0		7.49			St. Jago, Port Praya	14.53.	30		23.32.	30	11.
	Bermuda Island, } Wreck Hill }	32.15.	0		64.47.	0					Fogo, Middle.....	14.56.	0		24.20.	0	
											Brava, South point	14.46.	0		24.46.	0	
Azores, or Western Isles.	Corvo, South point	39.40.	45		31. 2.	45				Islands in the South Atlantic Ocean.	St. Paul's Rocks ..	0.55.	0		29.30.	0	
	Flores, point Delgada	39.33.	59		31. 8.	15					Fernando-Po	3.28.	0		8.40.15	E	
	Fayal, Horta	38.32.	30		28.43.	0		2.20			Princes Isle, ... }	1.41.	0		7.26.	0	
	Pico, the Peak	38.38.	30		28.33.	0					Port St. Antonio }	1.37.	0		8.14.	0	
	St. George, S. E. pt.	38.30.	45		27.51.	0					Princes I., the Port	1.37.	0		8.14.	0	
	Graciosa, Santa Cruz	39. 5.	0		28. 0.	0					St. Thomas's Isle }	0.26.	0		6.44.	0	
	Terceira, Angra ..	38.39.	0		27.14.	0		11.45			Man of War Bay }	0.26.	0		6.44.	0	
	St. Michael's, E. pt.	37.48.	15		25.13.	15					St. Matthew's.....	1.55.	0	S	9.25.	0	W
	St. Michael's, W. pt.	37.54.	15		25.57.	2					Annabona, High Pk.	1.28.	24		5.30.	0	E
	Do. point Delgado	37.45.	0		25.41.	40					Annabona, N. end..	1.23.	0		5.34.	0	
Madeira Isles.	Formigas, or Ants..	37.17.	10		24.53.	33					Ascension, Cross hill	7.56.	30		14.13.	30	W
	St. Mary, S. E. point	36.56.	47		25.18.	30					St. Helena Jamestown	15.55.	0		5.43.	30	2.1
	Do. Puntada Castello	36.56.	10		25. 6.	0					Fernando - Noronha	3.55.	15		32.35.	20	4.1
											Rocas	3.53.	0		33.31.	0	
											Abrolhos.....	17.58.	0		38.26.	0	
											Trinidad.....	20.32.	30		29.11.	0	
	Porto Santo, Town	33. 3.	15		16.17.	15					Martin Vas Rocks, }	20.28.	30		28.41.	0	
	Madeira, Funchall	32.37.	0		16.58.	0		0.4			the largest ... }	20.28.	30		28.41.	0	
	Do. Lorenzo point	32.43.	0		16.37.	0					Tristan de Cunha..	37. 5.	36		12. 7.	0	
	Do. Tristram point	32.54.	0		17.16.	0					Inaccessible Island	37.19.	0		11.50.	0	
Canary Islands.	S. Desertos, S. point	32.22.	0		16.28.	0					Nightingale Island	37.29.	0		11.48.	0	
	Salvages, Middle ..	30. 9.	0		16. 3.	0					Diego Alvarez	38.53.	0		10.40.	0	
	Piton	30. 2.	0		16.17.	0					Gough's Island	40.18.	0		9.42.	0	
											Lennon's Reef	37.31.	0		4.42.	0	
	Palma, the Town ..	28.43.	0		17.46.	0					Isle Grande	43. 0.	0		30. 0.	0	
	Palma, North point	28.54.	0		17.53.	0					Falkland Isle.....	51.21.	30		60. 1.	0	
	Palma, South point	28.30.	0		17.50.	0					Port Egmont.. }	51.21.	30		60. 1.	0	
	Ferro, Valverde ..	27.48.	0		17.55.	0		3.0			Falkland Isle.. }	51.46.	30		61.11.	0	
	Ferro, North end ..	27.51.	0		17.58.	0		3.0			Cape Percival }	51.46.	30		61.11.	0	
	Gomero, the Port ..	28. 5.	40		17. 7.	45					Berkley Sound, entr.	51.32.	0		57.25.	0	
	Teneriffe, the Peak	28.17.	0		16.39.	45					Auroral Isles, N. most	52.43.	0		48.12.	0	
	Do. Santa Cruz, Mole	28.28.	30		16.15.	45					Do. Southernmost..	53.18.	0		48. 2.	0	
	Do. Hidalgo point..	28.40.	0		16.21.	0											
	Do. Ortova.....	28.24.	0		16.36.	0		3.0									
	Do. Tena Point.....	28.19.	0		16.56.	0					Cape North	54. 4.	45		38.15.	0	
	Do. Port Christianos	28. 3.	0		16.44.	0					Cape George	54.17.	0		36.32.	30	
	Canary, Palmas ..	28.10.	0		15.31.	0					Cape Disappointmt.	54.58.	0		36.15.	0	
	Canary, N. E. point	28.13.	0		15.26.	0		3.0			Cooper's Island	54.57.	0		36. 4.	0	
	Canary, S. W. point	27.45.	0		15.38.	0					Clerk's I. or Rock	55. 5.	30		34.42.	0	
	Forta Ventura, W. pt.	28. 4.	0		14.31.	15											
	Do. Point Gorda ..	28.46.	0		13.52.	30				South Shetland, Sandwich Id., S. Georgia.	Candlemas Islands	57. 5.	30		27.13.	0	
	Lanzarote, E. point	29.14.	0		13.25.	46		0.45			Cape Montague....	58.33.	0		26.46.	0	
	Lanzarote, S. point	28.51.	0		13.45.	0					Friesland Peak	59. 2.	0		26.56.	0	
	Do. Puerta de Naos	28.58.	0		13.34.	0		0.45			Southern Thule....	59.34.	0		27.45.	0	
	Graciosa.....	29.14.	0		13.34.	0											
	St. Claire	29.17.	0		13.33.	0					Seal Islands	61. 0.	0		55.34.	0	
	Alegranza	29.25.	30		13.31.	0					Clarence I. N. point	61. 2.	0		54. 5.	0	
											Ridley's Island	61.49.	0		58.22.	0	
	St. Antonio Sta. Cruz	17. 1.	40		25. 8.	15					Cape Sherriff.....	62.26.	0		60.54.	0	
	Do. South end	16.54.	50		25.22.	0					Start Point.....	62.42.	0		61.27.	0	
	St. Vincent, Town..	16.53.	30		25. 3.	0					Smith's Cape.....	62.52.	0		63.45.	0	
	St. Lucia, S. point	16.44.	30		24.48.	40											

TABLE LVIII.

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LATITUDES AND LONGITUDES.

aces.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
ad adjacent Islands from the Cape of the Red Sea, and thence to Canton.							
ad Hope	34. 23. 40 S	18. 32. 15 E	3. 0	Ras Mahomed Cape	27. 43. 0 N	34. 15. 0 E	
.....	34. 25. 0	18. 52. 0		Bareedy Harbour ..	24. 17. 0	37. 45. 0	
is	34. 55. 30	20. 18. 0		Yambo	24. 10. 0	38. 21. 0	
.....	34. 35. 0	20. 54. 0		Juddah	21. 29. 0	39. 15. 0	
.....	34. 25. 0	22. 5. 0		Camfidia.....	19. 7. 0	40. 50. 0	
s	34. 10. 0	22. 18. 0		Marabia Russ, W.pt.	19. 11. 0	40. 5. 0	
Seal C.	34. 6. 30	23. 48. 0		Lobeia	15. 44. 0	42. 44. 0	
a. Recife	34. 1. 0	25. 40. 0		Cape Israel.....	15. 15. 0	42. 41. 0	
on	33. 39. 0	26. 34. 0	3. 20	Gebel Tor Island ..	15. 32. 0	42. 0. 0	
point ..	32. 22. 0	29. 25. 0		Gebel Zebayr Isle..	15. 3. 0	42. 18. 0	
le point	31. 8. 0	30. 45. 0		Gebel Zeghir Isle..	14. 2. 0	42. 52. 0	
point..	30. 15. 0	31. 22. 0		Mocha.....	13. 20. 0	43. 20. 0	
.....	29. 55. 0	31. 28. 0		Cape St. Anthony ..	12. 42. 0	44. 43. 0	
cia.....	28. 36. 0	32. 48. 0		Cape Aden	12. 43. 30	45. 14. 0	
.....	27. 13. 0	33. 15. 0		Cape Bogashua....	14. 10. 0	49. 26. 0	
, N.E. }	25. 58. 0	33. 15. 0	5. 15	Kisseen Point	15. 19. 0	51. 25. 0	
ry's I. }	24. 2. 0	35. 51. 0		Cape Fartash.....	15. 34. 0	51. 56. 0	
ates ..	22. 5. 0	35. 58. 0		Cape Morebat	17. 0. 0	54. 32. 0	
bastian	21. 30. 0	36. 2. 0		Cape Pedro, or .. }	18. 2. 0	56. 27. 0	
N. end	20. 15. 15	34. 45. 0		Chansely.....	19. 0. 0	57. 48. 0	
.....	18. 10. 0	37. 30. 0		Cape Isolette	20. 45. 0	58. 57. 0	
liver ..	16. 21. 30	40. 25. 0		Mazeira Isle, N. pt.	22. 22. 0	60. 0. 0	
afamede	15. 1. 30	40. 47. 0	4. 15	Cape Rosalgate....	23. 38. 0	58. 41. 0	
, the I.	10. 6. 0	40. 50. 0		Muscat Cove	25. 11. 0	51. 16. 0	
lo	8. 41. 0	39. 47. 0	3. 45	Cape Ras-Recan ..	26. 21. 0	56. 38. 0	
ad	6. 6. 0	39. 33. 0	4. 30	Cape Musseldom ..	25. 38. 0	58. 10. 0	
rb. entr.	2. 10. 0	41. 18. 0	12. 0	Cape Jacques.....	27. 13. 0	56. 25. 0	
.....	0. 12. 0	43. 2. 0		Gambaroon	26. 57. 0	56. 24. 0	
.....	1. 8. 0 N	44. 10. 0		Kishma Isle, N. end	29. 0. 0	50. 56. 0	7. 30
.....	2. 5. 0	45. 49. 0		Busheer	29. 15. 45	50. 27. 0	
.....	5. 0. 0	49. 20. 0		Karak Isle, Flagstaff	30. 29. 30	47. 40. 0	
.....	10. 26. 0	51. 38. 0		Bussora, the Factory	25. 16. 0	60. 24. 0	
ful....	12. 0. 0	50. 48. 0		Churbar	25. 10. 0	64. 16. 0	
.....	11. 20. 0	48. 52. 0		Cape Arubah	24. 50. 0	66. 23. 0	
.....	11. 22. 0	47. 50. 0		Cape Monze	22. 20. 0	69. 16. 0	
.....	10. 25. 0	45. 8. 0		Point Gigat	20. 42. 0	71. 6. 0	
.....	12. 4. 0	43. 51. 0		Diu Head	22. 20. 0	72. 39. 0	
centre	12. 30. 0	64. 10. 0		Cambay	21. 4. 30	72. 51. 30	
, E. pt.	12. 22. 0	54. 53. 0	9. 0	Surat River, }	21. 11. 0	73. 2. 34	4. 20
l Cape	12. 40. 0	43. 31. 0	12. 0	Surat	20. 22. 0	73. 2. 45	
l Island	14. 56. 0	40. 52. 0		Damaun	20. 10. 30	72. 56. 30	
.....	15. 32. 30	40. 15. 0		Omorgon	20. 3. 0	72. 49. 0	
, S. end	15. 34. 0	39. 37. 0		St. John's Point ..	19. 19. 0	72. 55. 24	0. 30
ay	18. 16. 0	38. 32. 0		Basseen Fort	18. 53. 45	72. 56. 0	12. 0
gton ..	19. 5. 0	37. 33. 0		Bombay Lighthouse	18. 42. 20	72. 53. 0	
.....	20. 28. 0	37. 27. 0		Henery & Kenery Is.	18. 37. 20	72. 56. 30	
z.....	21. 28. 0	37. 25. 0		Coullaba Island....	18. 32. 30	73. 0. 0	
.....	23. 58. 0	35. 42. 0		Chaoul	17. 57. 0	73. 9. 0	11. 0
le	23. 38. 0	36. 10. 0		Bancot River, entr.	17. 47. 30	73. 9. 0	
kers ..	24. 4. 0	36. 16. 0		Severndroog	17. 46. 0	73. 11. 0	
al	24. 58. 0	35. 56. 0		Dabul	16. 31. 0	73. 25. 0	
oal ..	25. 20. 0	35. 48. 0		Gheriah	15. 51. 0	73. 30. 0	
ape ..	23. 56. 0	35. 48. 0		Vingorla Rocks....	15. 29. 30	73. 33. 30	4. 30
.....	26. 8. 0	34. 15. 0		Goa, Algodda Point	15. 21. 0	73. 48. 0	
.....	30. 0. 30	32. 28. 0		St. George's Island..	14. 48. 0	74. 8. 0	
.....	28. 19. 0	33. 28. 0		Oyster Rocks	14. 47. 0	74. 12. 30	
				Carwar Head.....	14. 16. 0	74. 34. 0	
				Onore			

LATITUDES AND LONGITUDES.

	Names of Places.	Latitude.			Longitude.	high water				Names of Places.	Latitude.			Longitude.
		°	'	"		°	'	"			°	'	"	
Malabar Coast.	Fortified Island	14. 17.	0	N	74. 29.	0	E			Lighthouse Point ..	21. 28.	0	N	88. 2.
	Pigeon Island	14. 3. 30			74. 32.	0				East Sea Reef, tail..	20. 57.	0		88. 2.
	St. Mary's Rocks ..	13. 21.	0		74. 49.	0				West Sea Reef, tail	20. 59.	0		88. 4.
	Barcelore	13. 45.	0		74. 50.	0				West Brace	21. 12.	0		87. 4.
	Permira Rocks	13. 11.	0		74. 52.	0				Islamabad	22. 20.	0		91. 4.
	Mangalore	12. 50. 30			75. 7.	0				Aracan River	20. 12.	0		92. 4.
	Mount Dilly	11. 59.	0		75. 31. 30					Cheduba I., N.W.pt.	18. 58.	0		93. 18.
	Cananore	11. 51. 11			75. 43. 44					Cape Negrais	16. 2.	0		94. 13.
	Tellicherry Flagstaff	11. 44.	0		75. 49. 30					Diamond Isle	15. 52.	0		94. 19.
	Sacrifice Rock	11. 30.	0		75. 50.	0				Bragu Point	15. 44.	0		95. 22.
	Calicut	11. 15.	0		76. 5. 30					Martaban	16. 29.	0		97. 15.
	Cranganore	10. 17.	0		76. 23.	0				Pegu	18. 0.	0		96. 52.
	Cochin	9. 57. 30			76. 29.	0				Tavay Point	13. 33.	0		98. 6.
	Qu'lon Point	8. 52.	0		76. 48.	0				Merguy	12. 12.	0		98. 24.
	Anjenga	8. 39. 30			77. 0.	0				Junkselon Mt., S. end	7. 45.	0		98. 20.
	Cape Comorin	8. 5.	0		77. 44.	0				Slipper Island	7. 20.	0		98. 49.
	Manapar Point	8. 22.	0		78. 16.	0				Queda Fort	6. 6.	0		100. 21.
	Trinchindor Pagoda	8. 30.	0		78. 13.	0				Prince of Wales' Is.				
Ceylon Island.	Point Calymere....	10. 18.	0		79. 58.	0				or Pulo Pinang, } Fort Cornwallis }	5. 24. 30			100. 21.
	Point Pedro	9. 49. 30			80. 24.	0				Parcelar Hill	2. 52.	0		101. 29.
	Colombo	6. 57.	0		80. 0.	0				Malacca Fort.	2. 12.	0		102. 15.
	Point de Galle, } Flagstaff	6. 1.	0		80. 20.	0				Mount Formosa ..	1. 49.	0		102. 56.
	Dondra Head	5. 55. 30			80. 43.	0				Singapore Isle, Town	1. 24.	0		103. 58.
	Grand Bassas	6. 11.	0		81. 39.	0				Pulo Pisang	1. 22.	0		103. 16.
	Little Bassas	6. 24. 30			81. 55.	0				Point Romaina	1. 23. 30			104. 16.
	Elephant Point	6. 20.	0		81. 39. 15					Tringano River ..	5. 21.	0		103. 4.
	Batacola Roads ..	7. 44.	0		81. 52.	0				Siam River, entrance	13. 29. 40			101. 15.
	Venloos Bay									Siam	14. 20. 40			100. 50.
	Trincomale, Flag- } staff Point	7. 57.	0		81. 44.	0				Camboja Point	8. 40.	0		104. 55.
		8. 33. 30			81. 22.	0				Cape St. James	10. 18.	0		107. 10.
	Negapatam Port ..	10. 45. 30			79. 55.	0				Cape Avarello	12. 55.	0		109. 24.
	Tranquebar	11. 1. 30			79. 55.	0				Pulo Canton	15. 23.	0		109. 6.
	Devicotta	11. 24.	0		79. 50.	0				Turon Cape	16. 8. 30			108. 17.
	Porto Novo	11. 31.	0		79. 48.	0				Tiger's Island	16. 54.	0		107. 20.
	Cuddalore	11. 43. 23			79. 48. 12					Tienpack, entrance	21. 24.	0		111. 20.
Coromandel Coast.	Pondicherry	11. 56.	0		79. 54.	0				Hailin Isle, W. point	21. 34. 30			111. 54.
	Sadras	12. 32.	0		80. 14.	0				Mandarin's Cap Isle	21. 28.	0		112. 21.
	Madras, Fort St. } George	13. 4.	0		80. 22.	0				Hawchen, or False } St. John's Isle }	21. 35. 15			112. 38.
	Pullicate	13. 25.	0		80. 26.	0				Ditto, South point..	21. 33. 40			112. 50.
	Armegon	13. 59.	0		80. 22.	0				Macao	22. 11. 30			113. 31.
	Point Divy	13. 59.	0		81. 16.	0				Grand Ladrone Isle	21. 57.	0		113. 43.
	Masulipatam	16. 11.	0		81. 12. 45					Linting	22. 24. 30			113. 48.
	Point Gordewar ..	16. 48.	0		82. 24.	0				Grand Lema, Centre	22. 2. 30			114. 16.
	Coringa	16. 49.	0		82. 16.	0				Canton	23. 8. 9			113. 2.
	Visagapatam	17. 42. 30			83. 26.	0				ISLANDS, ROCKS, AND SHOALS IN INDIAN OCEAN.				
	Bimlipatam	17. 53.	0		83. 36.	0				Telemaque Shoal ..	38. 11.	0	S	21. 58.
	Chicacole	18. 18.	0		84. 0.	0				Fortune Shoal	33. 8.	0		43. 5.
	Ganjam Flagstaff ..	19. 22.	0		85. 10.	0				Augusta Shoal	33. 44.	0		36. 16.
	Jagernaut Pagoda ..	19. 48. 21			85. 52.	0				Otter's Shoal	33. 56.	0		36. 0.
	Black Pagoda	19. 52. 15			86. 6.	0				Barker's Rock	37. 43.	0		32. 5.
	False Point	20. 19.	0		86. 46.	0				Dutch Bank	37. 20.	0		38. 52.
	Point Palmiras	20. 44.	0		87. 6.	0	8. 30			Prince Edw. I., N. end	46. 39. 30			38. 2.
	Balasore	21. 30.	0		87. 1. 30		9. 45			Ditto, South end ..	46. 52. 30			37. 47.
	Ingerlee Pagoda ..	21. 44.	0		88. 1.	0				Desert Islands	48. 5.	0		48. 0.
	Kedgerree	21. 51.	0		88. 7.	0	11. 30			Necklegal	40. 40.	0		54. 0.
	Calcutta	22. 34. 40			88. 28. 15		3. 5			Kergulen's Land, }	48. 41. 15			69. 2.
	Chandernagor	22. 51. 26			88. 29. 30					Christms. Harbour }				
	Mud Point	21. 56.	0		88. 15.	0								
	Sauger	21. 36.	0		88. 11.	0								

TABLE LVIII.

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LATITUDES AND LONGITUDES.

Names of Places.	Latitude.			Longitude.	high water			Names of Places.	Latitude.			Longitude.	high water		
	°	'	"		°	'	"		°	'	"		°	'	"
Allen's Id., } e Digby ..	49.23.30	S		70.32.0	E			Inverarity, or... } Alphonsina I... }	7.3.30	S		52.49.0	E		
Pe George ..	49.54.30			70.12.15				Zanzibar Island ..	6.6.0			40.15.0			
Port Paliser ..	49.3.15			69.35.0				Amirante I., S. point	6.20.0			54.40.0			
St. Paul's Island ..	38.42.0			77.18.0				Eagle Island	5.11.0			54.4.0			
St. Paul I. W. pt.	37.47.46			77.25.11				Mahe Bank, NW. part	3.20.0			54.40.0			
St. Paul Island	22.8.0			112.30.0				Do. S. E. part	5.25.0			57.0.0			
Rocks	19.30.0			105.30.0				Curieuse Island ..	4.10.0			55.45.0			
St. Paul Island ..	10.34.0			105.33.0				African Islands	4.55.0			54.9.0			
Isles, N. most.	11.50.0			97.4.0				Seychelle, or Mahe I.	4.35.0			55.35.0		5.30	
Briton's Isle ..	9.30.0			99.14.0				Praslin Island	4.19.0			55.47.0			
St. Paul's Reef ..	1.20.0	N		94.20.0				Fortune Bank	7.7.0			57.4.0			
St. Mary	25.40.0	S		45.16.0				Coitive Island	7.14.0			56.32.0			
St. Augustine Bay, }	23.39.0			44.0.0				Sandy Island	15.52.0			54.50.0			
St. Vincent ..	21.46.0			43.50.0				Cardagas Bank, N. pt.	13.30.0			60.30.0			
St. Andrew's ..	16.2.0			45.16.0				Do., South point ..	16.45.30			59.59.20			
Cape	15.43.0			46.6.0				Gallegos Shoal	10.25.0			56.38.0			
St. Vincent Bay ..	15.43.0			46.28.0				St. Brandon Shoals	16.38.0			62.50.0			
St. Vincent Bay ..	15.10.0			47.6.0				Roderigo's Isle	19.40.40			63.11.45		0.45	
St. Vincent Bay ..	14.31.0			47.45.0				Mauritius, or Isle }	20.9.45			57.28.30		12.0	
St. Vincent Bay ..	13.31.0			48.9.0				of Fr., Port Louis }							
St. Vincent Bay ..	13.45.0			48.23.0				Bourbon, St. Dennis	20.51.43			55.30.15			
St. Sebastian ..	12.28.0			48.54.0				South Roque piz ..	10.30.0			64.30.0			
St. Ambrose ..	12.2.0			49.24.0				Speaker's Bank	4.48.0			72.30.0			
St. Vincent Bay, ent.	15.27.23			50.23.30				Peros Banhos I. centr.	5.23.0			71.57.0			
St. Vincent Island ..	17.0.0			50.25.0				Boddam's Island ..	5.22.0			72.15.0			
St. Vincent Point ..	17.40.14			49.53.15				Eagle Island	6.10.0			71.21.0			
St. Vincent Tapare ..	24.58.30			46.44.0				Diego Garcia	7.20.0			72.28.0			
St. Vincent Auphin ..	25.5.0			46.35.0				Centurion Rocks ..	7.41.10			70.59.0			
St. Vincent Bank, N. end	25.7.0			44.16.0				Centurion Shoal ..	7.41.0			72.52.0			
St. Vincent de India ..	22.28.0			40.37.0				Candu Islands	5.53.0			76.45.0			
St. Vincent Rocks ..	21.28.0			40.8.0				Adu Islands	5.15.0			76.25.0			
St. Vincent Rocks ..	21.22.0			42.42.0				Gama Island	2.10.0			76.10.0			
St. Vincent I., N. end ..	21.30.0			36.2.0				Grenville's Rock ..	0.10.0			80.52.0			
St. Vincent Bank ..	17.42.0			40.15.0				Pulo Oura	0.40.0			82.6.0			
St. Vincent Novo, or }	17.2.0			43.9.0				Bale of Cotton Rock	5.18.0	N		88.20.0			
St. Vincent Christopher's I. }	17.2.0			43.9.0				Maldives, S. E. Part	0.36.0	S		73.25.0			
St. Vincent Islands ..	18.26.0			44.15.0				Do. N. W. Part	7.6.0	N		73.8.0			
St. Vincent Island ..	17.30.0			44.4.30				Malique Island	8.16.30			73.13.0			
St. Vincent Field Shoal ..	16.20.0			44.8.0				Seneville Island ..	10.0.0			72.36.0			
St. Vincent Peak	12.54.0			45.14.0				Kalpenny Island ..	10.5.0			74.1.0			
St. Vincent Bay	12.7.30			44.30.0				Underoot Island ..	10.48.0			74.0.0			
St. Vincent Isle, centre	12.16.0			44.30.0				Elicalpeni Bank ..	11.15.0			74.20.0			
St. Vincent Isle, centre	12.20.0			43.50.0				Courutee	10.34.0			73.0.0			
St. Vincent	11.32.0			43.25.0				Pittu	10.48.0			72.51.0			
St. Vincent Martin's I. ..	10.19.0			43.30.0				Ament	11.6.30			73.8.0			
St. Vincent eese Shoals	12.30.0			46.47.0				Cardamun	11.14.0			73.12.30			
St. Vincent ass Bank ..	13.16.0			46.20.0				Kittan	11.29.0			73.24.0			
St. Vincent Islands ..	9.17.0			46.14.0				Chittae	11.42.0			73.4.0			
St. Vincent tion Island	9.50.0			47.16.0				Aucutta	10.51.30			72.31.0			
St. Vincent edo Islands	9.45.0			48.40.0				Peremulpar	11.9.0			72.28.30			
St. Vincent Island ..	8.26.0			47.12.0				Betra-par	11.35.30			72.34.0			
St. Vincent r's Island ..	9.22.0			51.45.0				Cherbaniani Bank	12.22.0			72.10.0			
St. Vincent Novo	10.15.0			52.20.0				North West pt. of }	13.30.0			70.45.0			
St. Vincent Islands ..	10.20.0			53.32.0				Laccadives }							
St. Vincent rence Island	9.35.0			52.15.0				Angrais Bank, mid.	16.30.0			71.55.0			
St. Vincent nce Island ..	9.10.0			53.7.0				Elizabeth Bank	17.5.0			71.28.0			
								Preparis Island	14.52.0			93.41.0			

LATITUDES AND LONGITUDES.

Names of Places.	Latitude.			Longitude.			high water	Names of Places.	Latitude.			Longitude.			high water
	°	'	"	°	'	"			°	'	"	°	'	"	
Andaman Isles.	Preparis Reef	14.45.	0	N	93.39.	0	E	Is. near W. coast of Sumatra.	Pulo Batoa, N. point	0.10.	0	N	98.45.	0	E
	Great Coco I., N. end	14. 8.	0		93.26.	30			Pulo Minton, S. pt.	0.40.	0	S	98.10.	0	
	Little Coco Isle	13.58.	30		93.18.	0			Se Booro, N. point	0.56.	0		98.38.	0	
	Gt. Andaman, N. end	13.34.	0		93. 9.	0			Ditto, S.E. point	1.47.	0		99.14.	0	
	Ditto, South end	11.26.	0		92.54.	0			Se Pora, N.W. point	1.54.	0		99.26.	0	
	Do. Port Cornwallis	13.18.	0		93.10.	0			Do., Point Marlboro'	2.25.	0		99.58.	0	
	Lit. Andaman, S. end	10.26.	0		92.40.	0			North Pogy, N. pt.	2.32.	0		100. 0.	0	
	The Brothers	10.55.	0		92.48.	0			South Pogy, S. pt.	3.20.	0		100.35.	0	
	Barren Island	12.17.	0		93.54.	0			Trieste Island	4. 2.	0		101.22.	0	
	Narcondam Island	13.24.	0		94.12.	0			Enganno Isle, S. pt.	5.27.	0		102.17.	0	
Nicobar Isles.	Invisible Shoal	11. 8.	0		93.38.	0		Entrance to China Sea, Straits of Malacca & Singapore.	Pulo Bouton, the } Dome	6.33.	0	N	99.20.	0	
	Car Nicobar	9.10.	0		92.56.	0			Pulo Pera	5.42.	0		99. 1.	0	
	Batty Malve	8.46.	30		92.57.	0			Prince of Wales' I. } or Pulo Pinang, } Fort Cornwallis	5.24.	30		100.21.	30	11. 0
	Tellingchou, N. end	8.32.	0		93.43.	0			Pulo Dindiang	4.16.	0		100.38.	0	
	Nancoury	8. 0.	0		93.41.	0			Pulo Jarra	4. 0.	0		100.14.	0	
	Sombrero Channel	7.45.	0		93.35.	0			Pulo Verela	3.47.	0		99.36.	0	
	Miroe	7.29.	0		93.46.	0			Brothers, N. most	3.24.	0		99.54.	0	
	Little Nicobar, N. end	7.27.	0		93.53.	0			Long Arroe, N. end	2.54.	0		100.43.	0	
	Great Nicobar, S. end	6.45.	0		94. 0.	0			Round Arroe	2.49.	0		100.49.	0	
	Tanasserim I., N. pt.	12.38.	0		97.32.	0			Malacca Fort	2.12.	0		102.15.	0	10.30
Islands, Rocks, and Shoals between the Indian and Pacific Oceans, from Sumatra to the Island of Formosa.								Entrance to China Sea.	Little Carrimon	1. 9.	30		103.25.	0	
Sumatra.	Tores Islands	11.50.	0		97. 1.	0			Tree Island	1. 7.	30		103.40.	0	
	Domel Isle, N. end	11.23.	0		97.50.	0			Barn Island	1.13.	0		103.42.	0	
	Seyer Isles	8.36.	0		97.46.	0			Black Rock	1.12.	0		103.48.	0	
									St. John's, S. point	1.17.	0		103.50.	0	
									Bintang Hill	1. 2.	30		104.30.	0	
									Pedro Blanca	1.20.	30		104.25.	30	
									Singapore Isle, Town	1.24.	0		103.58.	0	
									Pulo Panjang	1. 4.	0		104.54.	0	
									Pulo Tingy	2.16.	0		104. 7.	0	
									Pulo Auro	2.29.	30		104.34.	30	
Is. near W. coast of Sumatra.	Diamond Point	5.18.	0	N	97.48.	0	E	Anambas Is.	Pulo Timon, N. pt.	2.54.	0		104.15.	0	
	Tanjong Bon	1. 6.	0	S	104.20.	0			Pulo Varelle	3.16.	0		103.46.	0	
	Lucepara Island	3.14.	0		106.10.	0			North Anambas	3.27.	0		106.15.	0	
	Hog's Point	5.54.	0		105.42.	0			Gt. Anambas, W. pt.	3. 2.	0		105.46.	0	
	Flat Point	6. 0.	0		104.40.	0			Pulo Domar	2.45.	0		105.27.	0	
	Pulo Pisang	5.10.	0		103.53.	0			South Anambas	2.18.	0		106.13.	0	
	Bencoolen, Fort } Marlborough	3.48.	0		102. 0.	0	12. 0		Saddle Island	2.25.	0		105.45.	0	
	Indrapour Point	2.12.	0		100.40.	0			The White Rock	2.15.	0		105.37.	0	
	Padang Head	0.56.	0		99.58.	0			North Natunas	4.50.	0		108. 4.	0	
	Priman	0.41.	0		99.52.	0		Entrance to the China Sea.	Gt. Natunas, S. end	3.40.	0		108.19.	0	
Is. near W. coast of Sumatra.	Natal	0.29.	0	N	98.58.	0			S. Natunas, W. end	2.42.	0		108.40.	0	
	Tapanooley Bay	1.40.	0		98.40.	0			St. Pierre	2. 0.	0		108.54.	0	
	Baroos	1.56.	0		98.33.	0			Victory's Island	1.34.	0		106.23.	0	
	Point Labou	3. 6.	0		96.48.	0			Saddle Island	1.17.	0		107. 4.	0	
	Cape Felix	3.47.	0		95.58.	0			Camel's Hump	1.10.	0		106.57.	0	
	Acheen Head	5.36.	0		95.19.	0			St. Julian's Island	0.54.	0		106.47.	0	
	Ditto, Point Pedro	5.42.	0		95.35.	0			Timbelan's Isles	1. 0.	0		107.36.	0	
	Pulo Way, East point	5.46.	0		95.27.	0			St. Esprit I., E. end	0.35.	0		107.12.	0	
	Ditto, West point	5.48.	0		95.18.	0			St. Barbe	0. 9.	0		107.24.	0	
	Pulo Rondo, Middle	6. 4.	30		95.14.	0			Direction Island	0.15.	0		108.10.	0	
Is. near W. coast of Sumatra.	Pulo Brasse, E. point	5.42.	0		95.13.	0		Entrance to the China Sea.	Porto Bello	0.54.	0	S	106.40.	0	
	Ditto, North end	5.46.	0		95. 6.	0			Caremeta Isle, Peak	1.37.	0		108.53.	0	
	Pulo Nancy, E. point	5.40.	0		95.17.	0			Sourouton, W. point	1.42.	0		108.42.	0	
	Cocos Island	3. 6.	0		95.12.	0			Wellesley's Shoal	1.19.	0		108.35.	0	
	Hog Island, N. pt.	2.50.	0		95.30.	0			Ontario's Reef	2. 3.	0		108.40.	0	
	Pulo Banjack, S. pt.	2. 5.	0		96.48.	0									
	Pulo Nias, S. point	0.32.	0		97. 9.	0									
	Clap's Island	0. 5.	0		97.36.	0									

TABLE LVIII.

LATITUDES AND LONGITUDES.

f Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	low water
	° ' "	° ' "	A =		° ' "	° ' "	A =
Islands..	2. 31. 0 S.	108. 45. 0 E		Madura I., N. W. pt.	6. 53. 0 S.	112. 45. 30 E.	
, N. W. pt.	2. 36. 0	107. 35. 0		Do. East point	6. 53. 0	113. 58. 30	
point	2. 34. 0	108. 12. 0		Bally Island, S. pt.	8. 57. 0	115. 9. 0	
point	3. 15. 0	107. 30. 0		Bally Strait, S. ent.	8. 45. 0	114. 40. 0	
ter Island	3. 20. 30	107. 13. 0		Banditti Isle, S. E. pt.	8. 46. 0	115. 31. 0	
's Shoal..	2. 11. 15	106. 46. 0		Lombok Isle, S. pt.	8. 47. 0	116. 2. 0	
tings' Shl.	2. 21. 30	106. 57. 0		Do. the Peak	8. 21. 30	116. 26. 0	
land	2. 25. 30	107. 6. 0		Lombok St., S. ent.	8. 45. 0	115. 36. 0	
.....	2. 27. 30	106. 59. 0		Allas Strait, S. ent.	8. 50. 0	116. 28. 0	
S. W. pt.	2. 55. 0	107. 3. 45		Sumbawa I., W. pt.	9. 5. 0	116. 38. 0	
ock.....	2. 46. 0	107. 2. 0		Do. S. E. point....	8. 42. 0	119. 41. 0	
				Gunongapee Peak	8. 11. 0	119. 5. 0	
a point ..	1. 27. 0	105. 51. 0		Strait of Sapy	8. 50. 0	119. 35. 0	
Goonting	1. 43. 0	105. 22. 0		Bangalore Shoal ..	7. 40. 0	121. 15. 0	
onopia ..	2. 0. 0	105. 14. 0		Strait of Mangeray	8. 35. 0	120. 9. 0	
rmisan ..	2. 36. 30	105. 55. 0		Strait of Flores....	8. 40. 0	123. 3. 3	
int.....	2. 47. 30	105. 54. 0		Do. Flores Isle	8. 5. 0	123. 2. 0	
point....	3. 2. 0	106. 54. 0		Strait of Solor	8. 18. 0	123. 6. 0	
				Ombay I., N. W. end	8. 9. 0	124. 27. 0	
.....	0. 58. 0	105. 42. 0		Do. East point	8. 17. 0	125. 15. 0	
n Islands	1. 5. 16	105. 24. 4		Sandal Wd. I., W. Ca.	9. 42. 0	119. 0. 0	
le, E. pt.	0. 21. 0	105. 4. 0		Do. East point	10. 0. 0	120. 35. 0	
Bank....	0. 39. 0 N	105. 24. 0		Savu Isle, Factory	10. 37. 0	122. 0. 0	
land, Peak	6. 35. 0 S	105. 15. 0		Do. Centre	10. 30. 0	121. 43. 0	
Isd., Peak	6. 6. 0	105. 30. 15		New Isle, near Savu	10. 40. 0	121. 3. 0	
				Rotto I., S. W. end	11. 2. 0	122. 55. 0	
e, or Ta-				Savul Shoal, W. end	11. 33. 0	124. 10. 0	
Isle ..	5. 57. 0	105. 31. 0		Shoal	12. 45. 0	124. 28. 0	
et, S. pt.	5. 53. 0	105. 32. 0		Coral Shoal	13. 25. 0	124. 10. 0	
e Way ..	5. 56. 30	105. 51. 0		Shoal	13. 32. 0	124. 29. 0	
nd.....	5. 41. 0	105. 49. 0		Red-Island.....	15. 10. 0	124. 20. 0	
sters	5. 43. 30	105. 49. 0		Semao Island, S. end	10. 25. 0	123. 12. 0	
on	5. 53. 30	105. 58. 0		Strt. of Samoa, W. ent.	10. 33. 0	123. 20. 0	
.....	6. 0. 30	105. 56. 0		Timor I., S. W. pt.	10. 23. 0	123. 30. 0	
e, E. end	5. 47. 0	106. 19. 0		Do. N. E. point ..	8. 21. 0	127. 15. 0	
				Do. Cupang.....	10. 10. 0	123. 35. 0	
atcher ..	5. 41. 45	106. 42. 45		Do. Delhi	8. 35. 0	125. 40. 0	
atcher....	5. 12. 30	106. 32. 0		Pulo Bato	9. 16. 0	124. 0. 0	
hers, or				Timorlaut I., S. pt.	8. 15. 0	131. 50. 0	
ers....	5. 9. 30	106. 5. 0		Arroe Isle, S. point	7. 6. 0	135. 0. 0	
ock	5. 30. 0	106. 20. 0		Banda I., Anchorage	4. 31. 0	130. 0. 0	
ket.....	5. 58. 0	108. 33. 0		Burning Island ..	6. 35. 0	126. 40. 0	
sf	3. 31. 0	110. 5. 0		Booro I., the Town	3. 25. 0	127. 0. 0	
Java	5. 50. 0	110. 34. 0		Do. N. W. end....	3. 6. 0	125. 57. 0	
nd.....	5. 45. 0	112. 48. 0		Do. South end	3. 54. 0	126. 53. 0	
s Rocks..	5. 12. 0	113. 0. 0		Amboyna, Fort }	3. 40. 0	128. 15. 0	
ombo	5. 33. 0	114. 28. 0		Victoria.....			
ombo	5. 24. 0	114. 28. 0		Great Xulla, S. end	1. 51. 0	124. 52. 0	
.....	5. 10. 0	114. 36. 0		Xulla Mangola, .. }	1. 43. 0	125. 21. 0	
				West end			
l.....	6. 48. 0	105. 11. 0		Xulla Bessee, S. pt.	2. 28. 0	125. 58. 0	
nt	6. 4. 0	105. 54. 0		Do. N. W. point ..	1. 58. 0	125. 48. 0	
las point	5. 54. 0	106. 2. 0		Little Salwatty....	3. 57. 0	131. 17. 0	
oint	5. 52. 0	106. 2. 0		Ceram Laut	3. 53. 0	130. 59. 0	
.....	6. 4. 0	106. 12. 0					
bservaty.	6. 9. 0	106. 51. 45		Lahoe, West end.	3. 18. 0	128. 0. 0	
nd.....	5. 57. 0	106. 53. 0		Amahoy.....	3. 21. 0	128. 58. 0	
point....	6. 10. 0	108. 30. 0		Kessing, East point	3. 55. 0	130. 40. 0	
ana	7. 39. 0	114. 36. 0		Razaket pt., E. end	3. 36. 0	130. 51. 0	
st	8. 39. 0	114. 40. 0		Warov Bay	3. 25. 0	130. 30. 0	
ay	8. 10. 0	112. 55. 0		Saway Bay	2. 51. 0	129. 0. 0	
y.....	7. 45. 0	109. 47. 0					
pers point	7. 24. 0	106. 30. 0					

LATITUDES AND LONGITUDES.

Names of Places.	Latitude.			Longitude.			high water	Names of Places.	Latitude.			Longitude.			high water
	°	'	"	°	'	"			°	'	"	°	'	"	
Pitt's Passage.	Harakau	3. 37.	0 S	128. 29.	0 E			Salayer Strait, Mid. I.	5. 40.	0 S	120. 28.	0 E			
	Separau	3. 36.	0	128. 43.	0			Brill Shoal	6. 5.	0	118. 51.	15			
	Manipa	3. 17.	0	127. 28.	0			Postillions, N. W. pt.	6. 32.	0	118. 48.	0			
	Kelar	3. 16.	0	127. 33.	0			Rotterdam Island ..	5. 13.	0	117. 39.	0			
	Bonoa	2. 57.	0	127. 54.	0			Waller's Shoals ...	4. 37.	0	117. 8.	0			
	Oby Major, W. pt.	1. 30.	0	127. 15.	0			Lit. Pulo Laut, S. end	4. 48.	0	116. 0.	0			
	Gomona	1. 56.	0	127. 38.	0			Morresses	4. 25.	0	116. 3.	0			
	Pulo Pisang	1. 23.	0	128. 53.	0			Brothers	4. 26.	0	116. 32.	0			
	Mysole, W. point ..	1. 54.	0	129. 30.	0			Divalder	4. 12.	0	116. 21.	0			
	Kanary	1. 44.	0	129. 14.	0			Great Pulo Laut, S. pt.	4. 6.	0	116. 14.	0			
	Pulo Popa, S. E. pt.	1. 12.	0	129. 52.	0			Do. N. E. point ..	3. 23.	0	116. 41.	0			
	Salwatty, Pt. Pigon	0. 58.	0	130. 34.	0			Maragalong Isles ..	3. 41.	0	116. 54.	0			
	Do., N. E. point ..	0. 54.	0	130. 56.	0			South Watcher ...	0. 8.	0 N	119. 26.	0			
	Battenta, Cape Mebo	0. 56.	0	130. 25.	0			North Watcher ...	0. 35.	0	119. 37.	0			
	Do. East end	0. 47.	0	131. 10.	0			Triangles, two ... }	3. 1.	0 S	117. 53.	0			
	Pigeon Island	0. 37.	0	130. 38.	0			Northernmost							
	Foul Island	0. 37.	0	130. 38.	0			North point	7. 3.	0 N	116. 50.	0			
	Weyogee I., S. W. pt.	0. 28.	0	130. 23.	0			Unasang point	5. 17.	0	119. 25.	0			
	Do. point Pigot ..	0. 21.	0	131. 18.	0			Kareoogan point ..	1. 5.	0	119. 10.	0			
	Gebby I., Harbour	0. 4.	0	129. 20.	0			Ragged point	2. 10.	0 S	116. 48.	0			
	Youl Island	0. 28.	0	131. 0.	0			Shoal point	2. 35.	0	116. 47.	0			
	Asia's Isles, South- }	1. 0.	0	131. 17.	0			Salatan point	4. 10.	0	114. 42.	0			
	Westernmost ..							Flat point	3. 30.	0	111. 50.	0			
Moluccas.	Gillolo Isle, Ossa	0. 45.	0 N	128. 22.	0			Sambar point	2. 51.	0	109. 45.	0			
	Village							Tanjong Factie ...	1. 6.	0	109. 23.	0			
	Do., North end ...	2. 23.	0	128. 15.	0			Sambas Roads	1. 12.	0 N	109. 15.	0			
	Do., South end ...	0. 45.	0 S	128. 22.	0			Tanjong Apee	2. 19.	0	109. 25.	0			
	Moratay, N. Cape	2. 44.	0 N	128. 25.	0			Tanjong Dato	3. 0.	0	110. 13.	0			
	Do., South end ...	1. 45.	0	128. 16.	0			Borneo	4. 55.	0	114. 55.	0			
	Ternate Isle, Fort }	0. 50.	0	127. 32.	0			Abai Harbour	6. 24.	0	116. 22.	0			
	Orange							Banguay Peak	7. 19.	0	117. 6.	30			
	Tidore Island	0. 43.	0	127. 37.	0			Balambangaul. N. p.	7. 16.	0	116. 58.	0			
	Tyfore Island	0. 58.	0	126. 27.	0			Balabec Peak	7. 59.	0	117. 3.	0			
	Myo Island	1. 12.	0	126. 39.	0			Palawan, S. point.	8. 10.	0	117. 3.	0			
	Salibobo Isles, }	3. 47.	0	126. 45.	0			Do., North point ..	11. 31.	0	119. 25.	0			
	Southernmost }							Do., Long point ..	9. 38.	30	118. 22.	0			
	Glatton's Rock ...	3. 50.	30	125. 35.	0			Do., Table Mountain	10. 48.	30	119. 24.	0			
	Haycock	2. 56.	0	125. 50.	0			Cagayan Sooloo ..	7. 0.	0	118. 36.	0			
	Sanguy I., N. end.	3. 46.	10	125. 17.	10			Soolo Isle, Te- }	5. 57.	0	120. 53.	0			
	Siao Island, Peak ..	2. 43.	0	125. 35.	0			montanges ..							
	Bijarre Island, Peak	2. 15.	0	125. 10.	0			Do. Tulyan	6. 1.	0	121. 12.	0			
	Tagalonda	2. 25.	0	125. 20.	0			Basilau Isle, E. pt.	6. 30.	0	122. 30.	0			
Celebes.	Banka Island	1. 52.	0	125. 0.	0			Mindanao, Sam- }	6. 54.	0	122. 2.	0			
	Monado Fort	1. 27.	0	124. 38.	0			boangan							
	Cape Coffin	1. 42.	0	125. 0.	0			Do., Port St. Maria	7. 33.	0	122. 0.	0			
	Strait of Limba ...	1. 22.	30	125. 14.	0			Do., Banajao point.	9. 40.	0	125. 20.	0			
	Castican Bay	0. 48.	0	124. 45.	0			Do., C. St. Augustin	6. 13.	0	125. 58.	0			
	Goonongtalla River	0. 30.	0	123. 0.	0			Do., Mindanao	7. 10.	0	124. 30.	0			
	Cape Talabo	0. 48.	0 S	123. 57.	0			Cagaynes Isles ..	9. 34.	0	121. 23.	0			
	Cape Lessen	4. 54.	0	121. 28.	0			Surigao Isles, Su- }	9. 47.	0	125. 25.	0			
	Cambynas I., Peak	5. 21.	0	122. 1.	0			rigao Town ..							
	Bontheam	5. 34.	0	120. 32.	0			Samar, Espiritu }	12. 35.	0	125. 17.	0			
	Macassar	5. 9.	0	119. 39.	0			Santo							
	Mandhar point ...	3. 35.	0	119. 9.	0			St. Bernardino ...	12. 46.	0	124. 15.	0			
	Cape William	2. 34.	0	118. 58.	0			Mindoro, Calavite pt.	13. 27.	0	120. 20.	0			
	Cape Timoel, }	0. 1.	0 N	119. 26.	0			Do., South point ..	12. 11.	0	121. 14.	0			
	N. W. point ..							Goat Island	13. 52.	0	120. 6.	0			
	Douda point	0. 48.	0	119. 57.	0			Mirabello Shoal ...	14. 40.	0	119. 30.	0			
	Cape Rivers	1. 15.	0	120. 34.	0			Marsingola Shoal ..	15. 13.	0	117. 46.	0			
								Luconia, Albay .. }	13. 44.	15	123. 35.	0			
								Volcano							
Philippine Islands.	Bouton I., N. point	4. 21.	0 S	123. 5.	0			Do., Manila	14. 36.	0	120. 58.	0			
	Do., South point ..	5. 48.	0	122. 44.	0			Do., Subic	15. 5.	0	120. 0.	0			
	North Token Bessee	5. 10.	0	123. 40.	0			Do., Capones point	14. 52.	30	120. 3.	0			
	Salayer I., N. point	5. 48.	0	120. 46.	0			Do., Boliano point	16. 27.	30	120. 0.	0			

TABLE LVIII.

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LATITUDES AND LONGITUDES.

f Places.	Latitude.			Longitude.	high water			Names of Places.	Latitude.			Longitude.	high water		
	°	'	"	°	'	"	A		°	'	"	°	'	"	A
Ca. Bajador	18.42.	0	N	120.52.	15	E		Kirton's Shoal	5.39.	0	N	113.15.	0	E	
e Enganno	18.39.	0		122.21.	0			Marino's Shoals ..	5.54.	0		114.18.	0		
St. Ildefonso	15.25.	5		121.46.	30			Lovisa's Breakers..	6.21.	0		113.18.	0		
.....	14.8.	0		121.44.	0			Barton's Shoal	6.55.	0		116.15.	0		
o	14.18.	0		122.43.	0			Royal Charlotte's							
nl, Volcano	18.54.	0		121.43.	10			Rocks	6.56.	0		113.34.	0		
								Viper's Bank	7.30.	0		115.7.	0		
sles, Nmost.	21.8.	30		122.9.	0			Wdpole's Rocks ..	7.50.	0		114.30.	0		
afton Island	21.4.	0		121.0.	15			Viper's Breakers ..	8.0.	0		115.25.	0		
bago, Xima	21.59.	0		121.48.	0			Prince of Wales Bank	8.9.	0		110.30.	0		
e Rock ..	21.42.	0		121.3.	30			Sea Horse's Breakers	8.47.	0		116.44.	0		
I., S.E. end	21.54.	0		121.5.	0			Royal Captain Shoal	9.4.	30		116.41.	0		
oan	22.35.	0		120.32.	0			Gossard's Reef	8.58.	0		110.40.	0		
E. end	25.11.	0		121.56.	0			Ganges Breakers ..	9.22.	0		114.12.	0		
								Maino's Rocks....	9.39.	0		114.58.	0		
S, ROCKS AND SHOALS, IN THE CHINA SEA.								Investigator, S. Shoal	8.8.	0		114.40.	0		
								Do., N.E. Shoal	9.6.	0		116.30.	0		
								Do., N.W. Shoal	9.42.	0		113.6.	0		
								West London Shoal	8.54.	0		112.0.	0		
								East London Shoal	8.51.	0		112.25.	0		
								Western Reef.....	10.15.	0		113.41.	0		
								South Island	10.45.	0		114.27.	0		
								North West Island	11.9.	0		114.18.	0		
								North Danger	11.26.	0		114.22.	0		
								Bombay's Shoal ..	9.26.	0		116.55.	0		
								Marino's Bank	10.18.	0		115.7.	0		
								Royal Charlotte's							
								Sands	10.47.	0		114.29.	0		
								Marino's White Sand	10.48.	0		115.13.	0		
								Do., low black Island	11.1.	0		115.17.	0		
								Sea Horse's Bank..	10.52.	0		117.53.	0		
								Falmouth's low I...	10.58.	0		112.12.	0		
								Falmouth's Bank ..	11.25.	0		114.15.	0		
								Salutjungs low I...	11.32.	0		113.29.	0		
								Do., Bank.....	11.34.	0		113.51.	0		
								Gaper Shoals	11.36.	0		113.51.	0		
								Mirabello Shoal....	14.40.	0		119.30.	0		
								Masingola Shoal ..	15.13.	0		119.16.	0		
								Boiano Shoal	16.28.	30		119.42.	10		
								Scarboro' Shoal, }							
								E. end	15.12.	40		117.47.	0		
								Scarboro' Shoal cent.	15.8.	30		117.48.	0		
								Do., S. W. end	15.4.	0		117.47.	0		
								Macclesfield Shoal }							
								N. E. side ..	16.2.	0		114.42.	0		
								Do., S. W. side	15.28.	0		114.36.	0		
								Do., Bank	15.51.	0		114.18.	15		
								St. Esprit's Bank ..	19.13.	0		112.52.	0		
								Pedro Branco Isle..	22.19.	30		115.8.	0		
								Pratas, N. E. side..	20.51.	0		116.50.	0		
								Pratas, S. W. side..	20.38.	0		116.40.	0		
								Pratas, centre	20.47.	0		116.38.	0		
								North Shoal, W. end	17.4.	30		111.27.	0		
								North Shoal, E. end	17.6.	10		111.32.	38		
								Amphitrite, W. end	16.59.	0		112.12.	0		
								Amphitrite, E. end	16.54.	0		112.23.	0		
								Woody Island	16.50.	0		112.19.	0		
								Rocky Island.....	16.52.	0		112.20.	0		
								Junk's Bank.....	16.55.	0		112.20.	0		
								Lincoln Island	16.41.	0		112.42.	0		
								Pyramid Rock	16.35.	15		112.37.	30		
								Money's Island	16.29.	0		111.30.	0		
								Robert's Island	16.32.	0		111.34.	30		

LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
China Sea.							
Pattle's Island	16. 33. 20 N	111. 36. 0 E		Bottel Tobago, Xima	21. 59. 0 N	121. 48. 0 E	
Observation Bank ..	16. 36. 0	111. 41. 0		Kumi Island	24. 25. 0	123. 5. 0	
Drummond's Island ..	16. 29. 10	111. 43. 47		Hoapinsu Island ..	25. 44. 0	123. 32. 0	
Governor Duncan's Is.	16. 28. 40	111. 41. 0		Tiaou-su Island....	25. 55. 0	123. 47. 0	
Discovery Shoal, } West end. }	16. 11. 0	111. 32. 30		Taypingshau, } N. East end. }	24. 30. 0	125. 6. 0	
Ditto, East end ..	16. 16. 0	111. 46. 30		Parshongshan, } S. West end. }	23. 41. 0	124. 9. 0	
Vuladore's Shoal, } West end. }	16. 17. 30	111. 58. 30		Lekeyo Isle, N. end	27. 52. 0	128. 45. 0	
Ditto, East end	16. 19. 30	112. 4. 45		Ditto, Napakian } Harbour	26. 0. 0	128. 37. 0	
Passoo Keab's Island ..	16. 6. 0	111. 46. 0		Quelpert Isle S. point	33. 14. 0	126. 35. 0	
Triton's Bank	15. 46. 0	111. 11. 0		Tsusi straits of Corea	34. 24. 0	130. 0. 0	
Bombay's Shoal, } South West end. }	16. 0. 0	112. 25. 0		Dagelet Island	37. 22. 18	131. 22. 0	
Hainan Isle, N. pt.	20. 2. 0	110. 45. 0					
Ditto., South Point	18. 12. 0	109. 10. 0					
The Coast and adjacent Islands, from Canton to Tartary, and thence to Cape North.							
Coast of China.				Islands of Japan.			
Canton	23. 8. 9 N	113. 2. 45 E		Pinacles Islands ..	29. 43. 0	132. 5. 0	
Macao	22. 11. 30	113. 31. 30	5. 50	Tanaosima, S. end	30. 10. 0	132. 24. 0	
Grand Ladrone	21. 57. 0	113. 43. 0		Gottols. S.W. extrem.	32. 34. 50	128. 44. 0	
Grand Lema, Centre	22. 2. 30	114. 16. 0		Ditto, south end ..	32. 22. 0	130. 10. 0	
Pedro Branca Isle..	22. 19. 30	115. 8. 0		Asses Ears	32. 8. 0	129. 46. 0	
Tohaotcheou	23. 33. 0	116. 26. 0		Kuisin I., South end	31. 48. 0	132. 55. 0	
Sinentheou	24. 56. 0	118. 40. 0		Ditto, Kokura	33. 48. 0	132. 18. 0	
Ouentcheofou	28. 5. 0	120. 35. 0		Ditto, Nangasaki ..	32. 43. 40	129. 52. 7	
Cape Montague	29. 14. 0	121. 45. 0		Nippon Isle, S.W. end	34. 24. 0	132. 10. 0	
Chusan, entrance ..	29. 42. 0	121. 54. 0		Ditto, Cape Noto ..	37. 36. 0	137. 54. 0	
Ditto, Harbour	30. 26. 0	121. 41. 0		Ditto, Jootsi Sima..	37. 51. 0	137. 40. 0	
Ningpo	29. 57. 45	120. 18. 15		Ditto, Cape Sangaar	40. 30. 0	140. 46. 0	
Yang-tse-kiang-ho.	32. 5. 0	120. 37. 0		Ditto, Cape Nambu	39. 50. 0	142. 30. 0	
Nankin	32. 4. 40	118. 47. 15		Ditto, Table Island	38. 34. 0	142. 0. 0	
Yellow River, ent.	34. 3. 0	120. 0. 0		Ditto, Cape Kennis	37. 10. 0	141. 30. 0	
Honigan Foo	33. 34. 40	118. 49. 45		Ditto, White Point	35. 21. 0	140. 46. 0	
Staunton's Island ..	36. 47. 0	122. 13. 0		Ditto, Jeddo	36. 29. 0	140. 0. 0	
Cape Gower	36. 57. 0	122. 19. 0		Fatsisio Island	33. 13. 0	140. 12. 0	
Kisan-sou Harbour	37. 38. 0	121. 23. 0					
Toutchoofou, strait } of Miatau	37. 50. 0	120. 36. 0		Jesso I. Cape Euroen	42. 2. 0	143. 18. 0	
Salou-poo-tien, ...	38. 55. 0	118. 43. 0		Mariaberg Candu Pic	44. 49. 0	146. 40. 0	
Pekin, Observatory	39. 54. 13	116. 27. 45		Pic de Langle, } Perouse strait. }	45. 11. 0	141. 13. 13	
Cape Clonard	36. 5. 0	130. 0. 0					
Sanpou	37. 44. 0	129. 13. 0		Cape Crillon	45. 56. 0	141. 58. 54	
Kinghing	42. 10. 0	131. 24. 0		Monneron Island ..	46. 20. 0	142. 5. 0	
Ternai Bay	45. 10. 32	137. 1. 15		Bay de Langle	47. 48. 36	142. 17. 54	
Suffren Bay	47. 51. 0	139. 32. 37		Bay D'Estaing ...	48. 59. 38	142. 20. 42	
Cape Lesseps	49. 30. 0	141. 30. 0		Mongee Peak	49. 20. 0	143. 14. 0	
Castries Bay	51. 29. 0	140. 56. 19		Martiniere Peak ..	50. 12. 0	143. 20. 0	
Vanjuas Point	52. 7. 0	142. 42. 0		Boutin Point	51. 1. 0	142. 48. 0	
Ocholsk	59. 20. 10	143. 12. 30		Ere Kagean, N.E.pt.	54. 13. 0	146. 56. 0	
Yamsk	60. 46. 0	154. 30. 0		Cape Patience	48. 21. 0	147. 0. 0	
Bolcheretsk	52. 54. 30	156. 56. 15		Cape Amiva	46. 0. 0	144. 22. 0	
Cape Lopaika	51. 0. 15	156. 42. 45					
St. Peter & St. Paul	53. 0. 37	158. 44. 30		Staten I., S. W. end	44. 26. 0	147. 28. 0	
Nisjui Kamtschatska	56. 16. 0	162. 0. 0		Cape Vries, Vries } straits	45. 26. 0	149. 43. 0	
East Cape	66. 5. 30	169. 44. 0		Company's Isle, } Cape Schouton }	46. 18. 0	150. 58. 0	
North Cape	68. 56. 0	179. 11. 30		Ditto, North end ..	46. 28. 0	151. 20. 0	
				Kurule Is., Ma- rakan, N. end	47. 10. 0	153. 6. 0	
Formosa I., S.E. end.	21. 54. 0	121. 5. 0		Ditto, S. E. end, } Bousole Straits }	46. 46. 0	152. 32. 0	
Ditto, Tayoan	22. 35. 0	120. 32. 0		Shoom Island	50. 48. 0	156. 37. 0	
Ditto, N. E. end ..	25. 11. 0	121. 56. 0		Bhering's I., N. pt.	55. 36. 0	167. 46. 0	
Vele Rete Rock	21. 42. 0	121. 3. 30		Clerk's Island	63. 15. 0	169. 40. 0W	
				St. Laurence's I..	63. 47. 0	171. 45. 0 E	
				Anderson's Island..	63. 4. 0	167. 38. 0W	

TABLE LVIII.

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LATITUDES AND LONGITUDES.

Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
New Holland and adjacent Islands.							
	° ' "	° ' "	h m		° ' "	° ' "	h m
st Cape..	43.32. 0 S	146. 6. 0 E		King George's Sound, Bald Head }	35. 6. 15 S	118. 0. 45 E	
e.....	43.41. 15	146.28.30		Termination Island	34.30.20	121.58. 0	
e	43.37. 0	146.49. 0		Flinders I., S. W. pt.	33.45.30	134.24.15	
nca....	43.50.30	147. 7. 0		Port Lincoln	34.48.25	135.44.51	
Head ..	43.31. 0	147.27. 0		Cape Spencer.....	35.18. 0	136.53. 0	
Henry Bay	42.58. 0	147.46. 0		Cape Northumberland.	38. 2.30	140.37.30	
r	43.12. 0	148. 5. 0		Twofold Bay	37. 0.10	150.10.25	
y	42.42. 0	148. 0. 0		Adventure Bay S. part	43.21. 0	147.32. 0	4.36
's Head..	41.42. 0	148.24. 0		Islands, Rocks, and Shoals in the North Pacific Ocean, from Bhering's Straits to the Equator.			
van Island	40.43. 0	148. 8. 0					
land	40.44. 0	147.56. 0		Clerk's Island	63.15. 0 N	169.40. 0W	
mple ..	41. 3.30	147.11. 0		Gore's Island.....	60.17. 0	172.30.45	
sles	40.24. 0	144.41. 0		Bhering's Island, }			
and, N. pt.	39.37. 0	143.54. 0		North point ..	55.36. 0	167.46. 0 E	
				Cooper Island, S. pt.	54.24. 0	169. 0. 0	
raits, ent.	40.38. 0	148.20. 0		Alcootskia I., W. pt.	52.46. 0	170.42. 0	
ls., S. most	40.34. 0	148.10. 0		Ootaska	53.54.29	166.22.15W	
thermost	39.36. 0	148.10. 0		Rica de Plata	33.50. 0	160.39. 0 E	
oup	39.27. 0	147.15. 0		Rica de Oro	29.54. 0	157. 3. 0	
raits, ent.	39.10. 0	148.10. 0		Colanas	28.55. 0	158. 0. 0	
t entrance	39.14. 0	143.40. 0		St. Juan	27.30. 0	142.48. 0	
ny Otway	38.51. 0	143.30. 0		Suaphur Isle	24.48. 0	141.20. 0	
Port, ent.	38.30. 0	145. 8. 0		North Island	25.14. 0	141.14. 0	
romontory	39.11.30	146.20. 0		Grampus Islands ..	25.10. 0	146. 0. 0	
d	37.38. 0	149.41.30		Lobos Islands	24.50. 0	146.52. 0	
ve	37.30. 0	150. 7. 0		I. de Sebastian Lobes	25.24. 0	156.30. 0	
nedary ..	36.18. 0	150.11. 0		Jarlines	21.35. 0	151.30. 0	
ay	34. 0.30	151.14. 0	8. 0				
kson ..	33.51.30	151.16.30	8.15				
Point ..				Urnacas	20.25. 0	146.15. 0	
ay, ent...	33.34. 0	151.18. 0		Assumption Island	19.45. 0	145.35. 0	
hens	32.47. 0	152.10. 0		Tinian Island	14.58. 0	145.51.15	
ke	32.13.30	152.33. 0		Guam, Umatac Bay	13.21.18	144.19.45	
Cape	30.55. 0	153. 4. 0					
n	28.38. 0	153.37. 0		Johannes	6.55. 0	132.30. 0	
ger	28. 7. 0	153.32. 0		Lion's Island.....	5.16. 0	132.23. 0	
on	27. 0.30	153.26.20		St Andrew's Island	5.20. 0	132.16. 0	
ve	24.42. 0	153.16. 0		Pulo Anna	4.38.30	132.23.30	
ay	24. 4. 0	151.42. 0	8. 0	Pub Mariere.....	4.19.30	132.28. 0	
icorn	23.28. 0	151.15. 0	8. 0	Lord North's Island	3. 3. 0	131. 4.15	
y	23.29.30	150.58. 0		Dangerous Shoal ..	2.47. 0	134. 5. 0	
nsend ..	22.13.30	150.29. 0		St. David's Is., Centre	0.55. 0	134.21. 0	
erston ..	21.27.30	140.28. 0					
iborough	20.57. 0	149. 2. 0		Bablethoup, E. point	7.41. 0	134.55. 0	
vay	20.32. 0	148.54. 0		Kyaugle Island	8. 8.30	134.50. 0	
ucester, }				Angour Isle, S. point	6.53.30	134.21. 0	
lill	19.59.30	148.26.30					
eland....	19. 5. 0	147. 5. 0		Matelotes, N. E. Id.	8.34.30	137.44.45	
wich	18.19. 0	146.29. 0		Oitto, Largest Isle	8.17. 0	137.34. 0	
ton	16.53. 0	146.10. 0		Yap Island.....	9.35. 0	138. 8. 0	
'River, ent.	15.25. 0	145.26. 0		Philip Isles.....	8. 6. 0	140. 3. 0	
ery	14.57. 0	145.35. 0		Thirteen Islands ..	7.18. 0	144.21. 0	
.....	10.39.30	142.33. 0		Haweis Island	7.30. 0	146.28. 0	
's Island	10.55. 0	133. 4. 0		Strong's Island	5.12. 0	162.58. 0	
m's Land	11.12. 0	129.54. 0		Palmira Island....	5.49. 0	162.29. 0	
n Isle, }				Brown's Range	11.30. 0	162.42. 0	
(Diem ..	16.32. 0	139.50. 0		Piscadores	11.15. 0	167.20.20	
t Cape ..	21.50.30	114.28. 0		Muskitto Group ..	7.30. 0	168. 8. 0	
g's Is., }				Chatham Island ..	9.20. 0	171.20. 0	
'k's Bay }	25.20. 0	113. 5. 0		Mulgrave's Island..	5.54. 0	172.39. 0	
Island ..	31.58. 0	115.24.30		Pitt's Island	2.54. 0	174.30. 0	
rand	34. 1. 0	122. 4. 0					
ren	34.20. 0	115. 6. 0		St. Bartholomew ..	15.10. 0	163.48. 0	
recasteau	34.52. 0	116. 1. 0					

LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
Wake's Island	19. 0. 0 N	166. 46. 0 E		Stephen's Island ..	0. 16. 0 S	137. 48. 0 E	
Lamira, West point	20. 24. 0	166. 42. 0		Durour's Island...	1. 17. 0	143. 30. 0	
Gasper Rico	15. 12. 0	171. 18. 0		Matty's Island	1. 42. 0	143. 7. 0	
Wake's Rocks	17. 48. 0	173. 45. 0		Bondeuse	1. 30. 0	145. 2. 0	
St. Pierre	11. 6. 0	179. 0. 0 W		Admiralty Island ..	2. 11. 45	146. 12. 2	
Barbadoes	8. 54. 0	178. 21. 0		Sydney Shoal	3. 20. 0	146. 50. 0	
Necker Island	23. 34. 0	164. 31. 45		Active's Reef, middle	3. 40. 30	146. 45. 0	
French Frigate Bank	23. 45. 0	165. 50. 0		Portland Isles, E. most	2. 36. 0	149. 39. 0	
				Matthias Island ..	1. 4. 0	148. 3. 0	
Owhyhee Isle, N. pt.	20. 17. 0	155. 58. 45		Squally Island	1. 22. 0	149. 36. 0	
Do., Karakakoa Bay	19. 28. 10	155. 56. 23		New Ireland, Cape	4. 51. 17	152. 48. 55	
Ditto, South point..	18. 54. 30	155. 45. 0		St. George			
Mowee, East point ..	20. 50. 30	156. 2. 30		Do. Carteret's Harb.	4. 48. 0	152. 46. 0	
Ditto, West point..	20. 53. 30	156. 38. 30		Do. Port Praslin ..	4. 49. 27	153. 6. 45	
Tahoorowa	20. 38. 0	156. 36. 30		New Hanover, W. end	2. 25. 0	149. 6. 0	
Ranai	20. 46. 30	156. 55. 30		Ditto, S.W. point ..	2. 31. 0	149. 50. 0	
Morotoi	21. 10. 0	157. 16. 45		Sandwich Island ..	2. 59. 30	149. 45. 0	
Woahoo	21. 40. 30	158. 1. 30		New Britain, Cape			
Altoo, Onimea Road	21. 57. 0	159. 39. 15		Palliser	4. 18. 0	152. 10. 0	
Onecheow	21. 45. 0	160. 10. 0		Ditto, Cape Orford	5. 40. 0	152. 21. 0	
Bird's Island	23. 8. 0	161. 45. 0		Do. Port Montague	6. 12. 0	151. 2. 0	
				Do. Cape Ann	6. 27. 0	149. 33. 0	
Christmas Island ..	1. 57. 45	157. 34. 45		Anson's Island, N. pt.	5. 6. 0	154. 32. 0	
Shelvee's Island ..	22. 5. 0	112. 32. 0		Bonganville Strait..	7. 0. 0	155. 50. 0	
Socoro Island	18. 40. 0	110. 17. 0		Bridge Water Shoal	8. 54. 0	156. 49. 0	
St. Berto	19. 18. 0	109. 53. 0		Cape Satisfaction ..	8. 6. 0	156. 30. 0	
Rocka Partida	19. 4. 30	111. 6. 30		Cape Deception ..	8. 20. 30	157. 2. 29	
Passion Rock	16. 56. 0	109. 5. 0		Cape Nepeau	8. 51. 0	157. 32. 0	
Cliperton Rock	10. 27. 0	109. 18. 0		Cape Marsh	9. 7. 0	158. 26. 0	
Cocos I. Chatham Bay	5. 27. 0	87. 45. 0		Cape Henslow	9. 58. 0	160. 7. 0	
				Cape Philip	10. 25. 0	160. 44. 0	
Culpepper's Island	1. 40. 0	91. 55. 0		Cape Sidney	10. 52. 0	161. 32. 0	
Wenman's Island ..	1. 22. 30	91. 44. 0		Cape Surville	11. 0. 0	162. 18. 0	
Redondo Rock	0. 15. 0	91. 34. 0		Bellona Island	11. 6. 0	159. 37. 0	
Abington I., Cape	0. 29. 0	90. 43. 40		Bellona Shoal	12. 5. 0	159. 48. 0	
Ibetson				Port Praslin	7. 30. 0	157. 51. 0	
Albemarle Isle, Cape Berkeley	0. 2. 0	91. 31. 30		Gower Island	8. 1. 0	159. 53. 0	
Do. Christopher's pt.	0. 50. 0 S	91. 25. 0		Steward's Island ..	8. 24. 0	163. 0. 0	
James Isle, Harbour	0. 12. 0	90. 41. 30		Lord Howe's Group	5. 24. 0	159. 37. 0	
Charles Isle, S. pt.	1. 30. 0	90. 33. 0					
Chatham I., N.E. pt.	0. 45. 0	89. 9. 0		Shank's Island	0. 28. 0	163. 0. 0	
Do. Stephen's Bay..	0. 53. 0	89. 37. 0		Duff's Group, Dis- appointment I. }	9. 57. 0	167. 0. 0	
Islands, Rocks, and Shoals in the South Pacific Ocean, from New Guinea to Juan Fernandez.				Egmont I. Cape Byron	10. 43. 0	166. 9. 0	
				Kennedy's Island ..	11. 17. 0	167. 58. 0	
				Cherry Island	11. 31. 0	169. 39. 0	
				Mitre Island	11. 46. 0	169. 57. 0	
				Pandora's Reef	12. 8. 0	172. 0. 0	
				Sir Jos. Bankes' Is.	13. 27. 0	167. 24. 0	
				Cape Cumberland..	14. 39. 30	166. 47. 0	
				Bay, St. Philip and St. James }	15. 10. 0	167. 5. 0	
				Cape Quiros	14. 56. 8	167. 20. 0	
				Leper's Island	15. 23. 30	167. 58. 15	
				Maskelyne's Island	16. 32. 0	167. 59. 0	
				Malicolo, Port Sandwich }	16. 25. 20	167. 32. 6	
				Cape Lisburn	15. 40. 45	166. 57. 0	
				St. Bartholomew ..	15. 42. 0	167. 17. 30	
				Aurora Isle	15. 8. 0	167. 58. 6	
				Table Isle	15. 38. 0	167. 7. 0	
				Whitsuntide Isle ..	15. 44. 20	168. 20. 15	
				Ambrym Island ..	16. 9. 30	168. 12. 30	
Torres Straits, New Guinea.							
Cape of Good Hope	0. 20. 0 S	132. 31. 0 E					
Flat Point	0. 46. 0	134. 25. 0					
Cape Walsh	8. 26. 0	137. 28. 0					
Cape Rodney	10. 3. 30	147. 48. 0					
King William's Cape	6. 12. 0	147. 53. 0					
Louisiade Cape....	11. 20. 42	128. 20. 55					
Deliverance Island	9. 37. 0	140. 0. 0					
Booby Island.....	10. 36. 30	141. 56. 0					
Murray's Island ...	9. 51. 0	144. 2. 0					
Jervis Island	9. 56. 30	142. 9. 0					
York Is., Mt. Adolphus	10. 36. 30	142. 40. 0					
Cape Deliverance ..	10. 59. 20	154. 26. 30					
Cape Denys	8. 24. 0	151. 3. 52					

TABLE LVIII.

6

LATITUDES AND LONGITUDES.

of Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
	° ' "	° ' "	A. M.		° ' "	° ' "	A. M.
Island	16.30. 0 S	168.28.45 E		Bounty Isles	47.35. 0 S	179. 6. 0 E	
land	16.46.15	168.27.30		Chatham Isle, }			
d's Island..	16.58. 0	168.42. 0		Cape Young .. }	43.48. 0	176.58. 0W	
ent.....	17.14.15	168.38.15		Macauley Island ..	30. 8. 0	179. 0. 0	
broke Isle	17.25. 0	168.38. 0		Sunday Island	29.12. 0	178.13. 0	
h Island ..	17.41. 0	168.33. 0		Vasques	25.40. 0	174.56. 0	
ngo, }							
r's Head }	18.46.30	169.18.30		Rotumah Island ..	12.30. 0	177.50. 0 E	
r's Resolution	19.32.25	169.41. 0	3. 0	Solitary Island	10.40. 0	176. 0. 0W	
n	19.39. 0	170.15. 0		Duke of Clarence's I.	9.11. 0	171.30. 0	
.....	20.10. 0	170. 4. 0		Duke of York's I.	8.41. 0	173.24.45	
's Island ..	22.39. 0	169.16. 0		Quiros Island	10.40. 0	169.54. 0	
				Jesus Island	6.46. 0	166. 0. 0	
n Shoal, }				St. Bernard's Island	10.51. 0	167.10. 0	
end	18.54. 0	158.30. 0		Wallis' Island	13.18. 0	177.21.45	
entre.....	19. 9.30	158.23.30		Forlorn Hope	14.16. 0	176.56. 0	
's Shoals, }				Booby Island	16. 0. 0	175.50. 0	
e.....	20.55. 0	159.47. 0		Keppel's Island....	15.53. 0	174.12. 0	
hoal	19. 0. 0	159. 3. 0		Boscawen's Island	15.50. 0	174. 8. 0	
				Navigator's Isles, }			
Island	20. 7. 0	164.22. 0	6. 0	Opoun, E. pt. }	14. 9.10	169. 1.50	
a.....	20.18. 0	164.41. 0	6. 0	Do., Leone, S. point	14. 6. 0	169.16.22	
lnet	20.30. 0	164.56.15		Do., Tanfou, E. pt.	14. 5.23	169.18.27	
ronation ..	22. 5. 0	167. 8. 0		Do., Maouna, }			
Charlotte's }				Massacre Cove }	14.20.45	170.16.50	
nd.....	22.15. 0	167.13. 0		Do., Oyalava, E. pt.	14. 2.40	171. 7.15	
'ines	22.42. 0	167.34. 0		Calinassee, N. point	13.45. 0	171.51.33	
Island	22.26.40	167.16.45	10.30	Do., Pola, N.E. point	13.27.33	171.56.43	
of Wales' }				Amargura	18. 0. 0	174.35. 0	
nd.....	22.25. 0	166.52. 0		Vavao, Port Refuge	18.33.54	173.59.45	
Islands....	20.54. 0	166.30. 0		Lati Island.....	18.54. 0	174.48. 0	
				Savage Island	19. 2.15	169.30.30	
land	25. 0. 0	166.21. 0		Tofoa	19.51. 0	175. 6. 0	
iddleton's I.	28.12. 0	160.32. 0		Hapae, North point	19.48. 0	174. 5. 0	
on's Shoals	29.18. 0	159.28. 0		Rotterdam Island ..	20.15.20	174.45. 0	
owe's Island	31.30. 0	159. 0. 0		Amsterdam Island	21. 8.36	175. 1.50	8
Island	29. 1.45	168.10.15	1. 0	Eoa	21.24. 0	174.30. 0	
Cape	34.27. 0	173. 4. 0		Pylstart's Island ..	22.23.30	175.49.30	
eu	35.10. 0	175. 0. 0					
lville.....	36.24.45	175.48.50		Palmerston's Island	18. 0.30	163.12. 0	
y Bay.....	36.48. 0	176. 6.20		Whylootack	18.58. 0	159.48. 0	
st	37.44.25	178.58. 0		Harvey's Island....	19.17. 0	158.56.20	
Bay	38.22. 0	178.36. 0	6. 0	Wateou Island	20. 1.30	158.14.30	
Cape	39. 6.40	178. 2.20		Mangeea Island ..	21.56.45	158. 3. 0	
idnappers ..	39.42.45	177.16. 0					
urnagain ..	40.32.30	176.49. 0		Scilly Island	16.30. 0	155.10. 0	
s I., E. end	43.43. 0	173. 3.55		Lord Howe's Island	16.46.30	154. 6.40	
unders	45.37.45	170.16. 0		Marua Island.....	16.25.40	152.32.40	
ux Harbour	46. 8. 0	169.41. 0		Botabola Island....	16.32.30	151.52. 0	
ares	48. 3. 0	166.20. 0		Ulietea	16.45.35	151.31. 0	11
outh	47.16.50	167.20. 9		Huabeine, }			
Vest Bay ..	46.30. 0	167.25. 0		Owharre Bay.. }	16.42.46	151. 9. 6	
r's Island ..	46.28. 0	166.33. 0		Sir Chas. Sanders' I.	17.25. 0	150.58. 0	
ape.....	45.56.15	166. 6.15		Emao	17.30. 0	150.10. 0	
Bay	45.45.36	166.15.54	10.57	Tethuroa	17. 1. 0	149.36. 0	
ay	43.51. 0	168.43. 0		Otaheite, Pt. Venus	17.29.17	149.35.45	10.
oulweather	41.58. 0	171.30. 0		Ditto, Otooareite ..	17.55. 0	149.12. 0	
arewell	40.40. 0	173.18. 0		Miatea Island	17.52.20	148. 6. 0	
lotte's Sound	41. 6. 0	174.40. 0	9. 0				
ampbell	41.34. 0	174.56. 0	9.30	Prince of Wales' }			
alliser	41.24. 0	175.41. 0		Isle, N. point.. }	14.58. 0	147.50. 0	
gmont	39.23.20	174.12. 0		Recreation Island..	15.58. 0	148.48. 0	
Island	38. 5. 0	175. 5. 0		Palliser's Island ..	15.38.15	146.30.15	
				Chain Island	17.25.30	145.30. 0	
nd's Group..	50.30. 0	166.25. 0		Gloucester Island ..	20.31. 0	145.54. 0	

LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
Dangerous Archipelago.	Oheteroa	22. 26. 30 S	150. 48. 45 W	Cape Corzo	49. 26. 0 S	75. 46. 0 W	
	Tooloual	23. 25. 0	149. 20. 30	Cape Tres Montes	46. 59. 0	75. 27. 0	
	High Island	23. 42. 0	148. 3. 0	Cape Taytan	45. 51. 0	75. 28. 0	
	Taoukaa Island	14. 30. 30	145. 9. 30	Chiloe Castro	42. 41. 0	74. 3. 30	
	Disappointment Is. ..	14. 7. 0	141. 22. 0	Chiloe Castro, Point Quilan ..	43. 41. 0	74. 19. 30	
	Adventure Island ..	17. 10. 0	144. 30. 0	Chiloe Castro, St. Carlos	41. 53. 0	73. 50. 0	
	Furneaux Island ..	17. 11. 0	143. 6. 40	Quidal Point	41. 5. 0	74. 3. 0	
	Resolution Island ..	17. 23. 30	141. 45. 0	Valdivia Fort, St. Carlos	39. 50. 7	73. 34. 15	11. M
	Bird Island	17. 49. 0	142. 43. 24	Mocha Island	38. 22. 30	73. 59. 0	
	Bow Island	18. 17. 0	140. 43. 0	Santa Maria Island ..	37. 1. 0	73. 36. 0	
	Prince W. Henry's I. ..	19. 0. 0	141. 22. 0	Conception	36. 49. 10	73. 4. 45	
	Cumberland Island ..	19. 18. 0	140. 52. 0	Santiago	33. 30. 0	70. 56. 0	
	Gloucester Island ..	19. 11. 0	140. 20. 0	Valparaiso	33. 0. 30	71. 38. 15	
	Queen Charlotte's I. ..	19. 18. 0	138. 20. 0	Coquimbo	29. 54. 40	71. 19. 15	
	Whitsunday Island ..	19. 26. 0	138. 12. 0	Choros Point	28. 50. 0	71. 30. 0	
	Lagoon Island	18. 48. 0	138. 33. 0	Copiapo	27. 10. 0	71. 5. 15	
	Osnaburg Island ..	22. 8. 0	140. 37. 0	Blanca Island	24. 57. 0	70. 35. 0	
	Blight Lagoon Island ..	21. 43. 0	140. 30. 0	Morro Moreno	23. 19. 0	70. 27. 0	
	Carysfoot Island ..	21. 0. 0	138. 26. 0	Solitary Island	22. 58. 0	70. 15. 0	
	Lord Hood's Island ..	21. 42. 0	135. 32. 0	Isle de Iquiqua	20. 14. 0	70. 13. 0	
	Porpoise Shoal	22. 11. 38	135. 35. 36	Arica	18. 26. 40	70. 16. 5	
Marquesas.	Gambier's Island ..	23. 12. 0	134. 59. 0	Ylo	17. 36. 15	71. 9. 45	
	Crescent	23. 22. 0	134. 30. 0	Port Caballos	15. 5. 0	75. 31. 0	
	Pitcairn's Island ..	25. 4. 0	130. 25. 0	Pisco	13. 45. 0	76. 13. 0	
	St. Juan Baptista ..	25. 57. 0	137. 56. 0	Lima	12. 3. 0	76. 56. 45	
	Opapo Isle	27. 36. 0	144. 11. 15	Callao, the Castle ..	12. 3. 38	77. 4. 19	
	Robert's Island	8. 3. 0	140. 30. 0	St. Martin's Island ..	11. 6. 0	77. 31. 0	
	Nopahceevah	8. 54. 30	140. 5. 0	Truxillo	8. 9. 0	78. 51. 0	
	Rooahooagah	9. 0. 0	139. 27. 0	Lobos de Mer	6. 56. 0	80. 49. 0	
	Hood's Island	9. 26. 0	138. 52. 0	Lobos de Tierra ..	6. 25. 0	80. 45. 30	
	Rooapoo	9. 30. 0	140. 0. 0	Punta de Auxa	5. 58. 0	81. 4. 0	
	Ohevahea	9. 40. 40	139. 1. 40	Paiza	5. 3. 0	80. 59. 0	
	St. Christiana, Resolution Bay }	9. 55. 30	139. 8. 40	Cape Blanco	4. 19. 0	81. 6. 15	
	Onateaya	9. 58. 0	138. 51. 0	Picos Point	3. 39. 0	80. 32. 0	
	Magdalena	10. 25. 30	138. 49. 0	Guayaquil	2. 11. 30	79. 41. 15	7. I
	Penrhyn's Island ..	9. 12. 0	157. 43. 0	Point St. Helena ..	2. 10. 0	80. 47. 15	
	Ducie's Island	24. 24. 0	124. 37. 0	Cape de Lorenzo ..	1. 4. 0	80. 43. 0	
	Easter Island	27. 9. 33	109. 28. 30	Cape Pasado	0. 27. 0	80. 19. 15	
	Felix	26. 16. 20	80. 3. 0	Quito	0. 13. 17	78. 21. 30	
	Ambrose	26. 20. 0	79. 51. 0	Cape St. Francis ..	0. 40. 0 N	79. 53. 0	
	Masafuero	33. 45. 0	80. 42. 0	Esmeraldas	0. 54. 0	79. 24. 0	
	Juan Fernandez ..	33. 40. 0	78. 58. 15	Tumaco Island	1. 46. 0	78. 38. 30	
WEST COAST OF AMERICA, FROM CAPE HORN TO ICY CAPE.				Cape Corrientes ..	5. 33. 0	77. 16. 0	
Terra del Fuego.	Cape Horn	55. 58. 30 S	67. 21. 14 W	Panama	8. 58. 50	79. 27. 15	
	Diego Ramirez, Middle Isle	56. 27. 0	68. 39. 0	Point Mala	7. 23. 0	79. 51. 0	
	St. Ildefonso Isle ..	55. 55. 0	69. 18. 0	Cape Marietta	7. 14. 0	80. 37. 0	
	Christmas Sound ..	55. 25. 0	69. 50. 0	Malpelo Island	3. 59. 0	80. 11. 30	
	Gilbert's Island ..	55. 13. 0	70. 56. 45	Quibo Isle, S. E. }	7. 21. 0	81. 28. 0	
	Cape Desolation ..	54. 55. 0	71. 42. 0	Cape			
	Cape Noir	54. 31. 30	73. 16. 14	Point Burcia	8. 4. 0	82. 50. 15	
	Cape Gloucester ..	54. 7. 0	73. 55. 0	Cape Blanco	9. 13. 0	85. 28. 0	
	Cape Pilar	52. 46. 0	74. 54. 14	Point St. Catherine ..	10. 24. 0	86. 21. 0	
	Cape Victory	52. 33. 0	74. 56. 0	Leon	12. 21. 0	86. 45. 0	
	Madre de Dios, }			Point Gatimala	13. 54. 0	90. 53. 0	
	Cape Santiago ..	50. 54. 0	75. 30. 0	Puerto Ventosa	16. 6. 0	95. 22. 0	
				Agualco	16. 2. 0	96. 52. 0	
				Acapulco	16. 50. 19	99. 49. 18	
				Cape Corrientes ..	20. 25. 30	103. 35. 6	
Mexico, or New Spain.				St. Blas, Port	21. 32. 48	105. 15. 33	
				Tres Marias	21. 28. 0	106. 29. 0	
				St. Joseph	23. 3. 13	109. 40. 53	

TABLE LVIII.

LATITUDES AND LONGITUDES.

of Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
	° ' "	° ' "			° ' "	° ' "	
Lucar	22.44. 0 N	109.54. 0 W		Mount St. Elisas ..	60. 17. 35 N	140.50. 6 W	
Termonza ..	27.46. 0	114.41. 0		Cape Suckling	60. 1. 0	143.42. 0	
Island	29.49. 0	115.10. 0		Cape Hammond ..	59.49. 0	144.26. 0	
Francisco..	30.23. 0	115.36. 0		Cape Hinchinbroke	60.12.30	146.39.20	
dos Santos ..	31.56. 0	116.22. 0		Port Chalmers	60.16. 0	147. 5. 0	
ago	32.42.30	116.53.15		Cape Puget	59.55. 0	148.19. 0	
Conception ..	34.32. 0	120. 6. 0		Middleton's, or Rose I	59.32. 0	146.22. 0	
y	36.35.45	121.51. 6		Chiswell's Is., S. pt.	59.31. 0	149.24. 0	
Francisco..	37.48.30	122. 8. 0	11.25	Cape Elizabeth	59. 9. 0	151.27. 0	
Endocino ..	40.29. 0	124.29.15		Port Chatham	59.14. 0	151.14. 0	
idad	41. 3. 0	123.54. 0		Anchor Point	59.39. 0	151.39. 0	
ford	42.52. 0	124.25. 0		East Foreland	60.43. 0	150.58. 0	
egory	43.29. 0	124. 9. 0		West Foreland	60.42. 0	151.16. 0	
rpetua	44.12. 0	123.55. 0		Point Campbell....	61. 8. 0	149.38. 0	
ulweather..	44.49. 0	123.56. 0		Point Harriott	60.24. 0	151.48. 0	
okout	45.32. 0	123.49. 0		Cape Douglas	58.52. 0	152.50. 0	
isappoint- }	46.19. 0	123.54. 0		Point Banks	58.40. 0	152. 6. 0	
Harbour....	47. 0. 0	123.53. 0		St. Hermogene's I.	58.10.30	151.30. 0	
enville	47.22. 0	124. 1.30		Cape Grenville ...	57.35. 0	152. 0. 0	
attery.....	48.23. 0	124.22. 0		Cape Barnabas	57.10. 0	152.39. 0	
				Cape Trinity	56.45. 0	153.38. 0	
Juan	48.34. 0	124. 8. 0		Trinity Islands ...	56.34. 0	153.36. 0	
Sound	49.35.15	126.36.46	0.20	Tscherikow Islands	55.49. 0	155. 8. 0	
Point	50. 6. 0	127.57. 0		Schoomagen Isle, }	55.15. 0	159.48. 0	
ott	50.48. 0	128.20. 0		N.W. point ..			
rSartine's }	50.52. 0	129. 0. 0		Halibut Isle, S.E. pt.	54.23. 0	162.27. 0	
atham	50.19.30	125.15. 0		Oonalaska, Sam- }	53.54.29	166.22.15	
Gonzalo ..	48.28. 0	122.53. 0		ganooda Harb. }			
				Bristol River, ent.	58.12. 0	157.33. 0	
ution	51.12. 0	127.51. 0		Round Island.....	58.29. 0	159.53. 0	
aine	52.13. 0	128.20. 0		Cape Newnham....	58.34. 0	161.55. 0	12.
Harbour ...	53.10. 0	129.34. 0		Shoalness	60. 0. 0	161.52. 0	
etson	54. 4. 0	130.30. 0		Cape Stephens	63.33.30	162.17. 0	
Passage ..	54.20. 0	130.32. 0		Cape Denbigh	64.17. 0	161.53. 0	
Chacon ..	54.43. 0	131.45. 0		Cape Rodney	64.34. 0	166.37. 0	
Muzon....	54.42. 0	132.30. 0		Cape Prince of Wales	65.45.30	168.17.30	
				Cape Mulgrave	67.45.30	165.12. 0	
James, }				Cape Lisburne	69. 5. 0	165.22.30	
tor	51.57. 0	131. 6. 0		Icy Cape.....	70.29. 0	161.42.30	
nry	52.53. 0	132.37. 0		East Coast of America, from Cape Horn to Cape Florida.			
ck	53.10. 0	132.40. 0					
inter.....	53.19. 0	132.47. 0		Cape Horn.....	55.58.30 S	67.21.14 W	
, or N. Id.	54.20. 0	133.13. 0		Staten I. Cape St. John	54.47.10	63.42.30	4.
visible	54.12. 0	131.30. 0		Le Maire's Straits, }	55. 0. 0	65.19. 0	4.
				Cape Good Success }			
's, or St. }	54.53. 0	133.21. 0		Cape Santa Iries ..	54. 8. 0	66.57.26	
I., N. pt. }	55.12. 0	133.25. 0		Cape St. Sebastian	53.27. 0	67.59. 0	
carelli	55.27. 0	133.37. 0		Straits of Magellan }	52.41. 0	68.25.30	
lington ..	55.58. 0	133.33. 0		Q. Catharine's }			
e	56. 2. 0	133.52. 0		Do., Cape Virginis	52.21. 0	68.17.25	12.
cision	55.54. 0	134.18. 0		Do., Cape Froward	53.53. 0	71.11. 0	
ands	56.10. 0	134.23. 0		Cape Fair Weather	51.33. 0	69. 0. 0	
maney....	57. 2. 0	135.46.15		Santa Cruz Harbour	50.17.30	68.28. 0	
ecumbe ..	57.55. 0	136.17. 0		Port St. Julian	49. 5.30	67.44.15	4.
ss.....	58.12. 0	136.24.20		Port Desire	47.45. 0	66. 0. 0	
und, ent..	58.13. 0	136.24. 0		Cape Blanco	47.15.30	65.57.15	
ncer.....	58.51. 0	137.55. 0		St. George's Bay, }	45.45. 0	67.27.15	
rweather..	58.37. 0	137.45. 0		Port Cordova ..			
François..	59. 9. 0	138.24. 0		Point St. Helena ..	44.30. 0	65.29.15	
s Bay	59.33. 0	139.54. 0		Port St. Antonio ..	45. 2.30	65.48.44	
y Bay, }	59.54. 0	141.30. 0		Cape Corrientes ..	38. 0. 0	57.41. 0	
Phipps.. }							
ou.....							

LATITUDES AND LONGITUDES.

Names of Places.		Latitude.		Longitude.		high water	Names of Places.		Latitude.		Longitude.		high water
		°	'	°	'				°	'	°	'	
Paraguay.	River Plate, Cape	36.20.	0	S	56.45.	0W	Islands.	Aves, East point ..	11.57.30	N	67.30.30	W	
	St. Antonio....							Bonaire, North point	12.19.15		68.30.	0	
	Do., Buenos Ayres	34.36.	40		58.24.	30		Curaçoa, N. point..	12.24.	0	69.16.20		
	Colonia del Sacra-	34.26.	0		57.58.	0		Ditto, Amsterdam					
	mento.....							Harbour.....	12.6.15		69.0.45		
	Maldonado Harb.,	34.56.	19		54.40.	0		Oruba, N. W. point	12.38.	0	70.10.	0	
	Gorriti Isle....							Ditto, S. E. point ..	12.25.	0	69.59.	0	
	Cape St. Maria	34.40.	0		53.54.	0							
	Rio Grande de San	32.10.	0		52.3.	0							
	Pedro												
Brazil.	Morros de St. Maria	28.55.	0		48.18.	0	Columbia.	Cape Three Points	10.45.15		62.45.50		
	St Catharine's I., N. pt.	27.19.10			47.40.	0		Cumana	10.27.37		64.9.45		
	Ditto, South point..	27.49.	0		47.49.	0		New Barcelona....	10.6.52		64.44.30		
	Parangua Harbour	25.32.	0		47.45.	0		Cape Coadera	10.35.54		66.11.30		
	Santos Amiaz Isle..	24.4.	0		46.5.	0		Guayra	10.36.19		67.6.45		
	Armasao	23.44.30			45.13.	0		Caracas	10.30.50		67.4.45		
	Grand Island.....	23.18.	0		44.0.	0		Porto Cabello, Castle	10.29.30		68.4.45		
	Rio Janeiro, Rat Isle	22.53.	0		43.12.	0		Cape Roman	12.11.	0	70.8.30		
	Cape Frio	23.0.30			42.7.30			Maracaybo.....	10.39.	0	71.44.	0	
	Cape St. Thomas ..	22.	0		40.55.	0		Monks Islands	12.30.	0	70.58.	0	
Guayana.	Espiritu Santo	20.15.	0		39.28.	0	Bay of Honduras.	Cape de la Vela....	12.11.	0	72.15.35		
	Abrolhos Islands ..	17.58.	0		38.26.	0		Santa Martha	11.19.34		74.8.30		
	Porto Seguro	16.40.	0		39.0.	0		Carthage.....	10.25.18		75.29.45		
	Bahia, C. St. Antonio	12.59.	0		38.25.	0		Gulf of Darien, ent.	8.33.	0	77.0.0		
	Do., Fort St. Anthony	13.5.	0		38.28.	0		Porto Bello	9.34.30		79.43.	0	
	River St. Francisco	10.57.	0		36.14.	0		Mlewfield's Riv., ent.	11.58.	0	82.55.	0	
	Cape St. Augustine	8.23.	0		34.56.	0		Great Corn Isle, N. end	12.13.	0	82.10.	0	
	Pernambuco, Fort							Little Corn Isle ...	12.18.	0	82.6.	0	
	Picao	8.3.30			34.54.	0		St. Andrew's Isle ..	12.31.	0	80.59.	0	
	Olinde.....	8.0.	0		34.50.	0		Cape Graciosa Dios	14.56.30		82.45.	0	
Is. adj. to Columbia.	Cape Ledo	6.50.	0		35.7.	0	West Florida.	Black River, ent. ..	15.58.	0	84.58.	0	
	Cape St. Roque....	5.10.	0		35.40.	0		Cape Cameron	16.0.	0	85.12.30		
	Seara	3.50.	0		38.28.	0		Cape Delgado	15.59.	0	86.10.	0	
	St. Anna.....	2.18.	0		43.43.	0		Truxillo	15.51.	0	86.7.0		
	St. Louis de Ma- ranham	2.29.	0		44.5.	0		Swan Islands.....	17.22.	0	83.56.	0	
	River Para, entrance	0.20.	0		48.20.	0		Bonacio I., N. E. pt.	16.31.	0	85.47.	0	
	Para, Fort	1.28.	0		48.39.45			Rattan Isle, E. point	16.26.	0	86.20.	0	
	River Amazon, ent.	1.25.	0	N	50.5.	0		Utilo, East point ..	16.3.	0	87.2.0		
	Cape North, entrance	1.51.	0		50.15.	0		Glover's Reef, N. pt.	16.49.	0	87.36.	0	
	River Cassipour ..	3.54.	0		51.10.	0		Ditto, South point	16.28.	0	87.52.	0	
Is. adj. to Columbia.	Cape Orange	4.8.	0		51.20.	0	East Florida.	Northern Trian- gles, N. point..	19.1.	0	87.43.	0	
	Riv. Oyapok, St. Louis	3.57.	0		51.40.	0		Ditto, South point	18.29.	0	87.42.	0	
	Cayenne.....	4.56.15			52.14.45			Cozumel Isle, S. pt	20.1.	0	87.2.0		
	River Moroni, Port	5.44.	0		53.55.30			Punta Brava	21.0.	0	86.44.	0	
	Surinam, Brams pt.	5.52.	0		55.15.30			Mugeris Isle, Centre	21.15.	0	86.39.	0	
	Paramaribo	5.43.35			55.15.	0		Cape Catouche	21.31.30		86.57.	0	
	River Berbice, ent.	6.29.	0		37.11.	0		Point Palmar.....	20.58.	0	90.18.	0	
	Fort Nassau	5.54.	0		57.15.	0		Campeche	19.50.45		90.30.30		
	R. Demorari, Cor- robano point ..	6.48.	0		58.1.37			Vera Cruz	19.11.52		96.8.45		
	River Essequibo, ent.	7.0.	0		58.11.	0		Mexico	19.25.45		99.5.15		
Is. adj. to Columbia.	Cape Nassau	7.34.	0		58.54.	0	East Florida.	Triangle Isle, E. isle	21.2.	0	92.5.0		
	Cape Barma	8.40.	0		60.14.	0		Cape Roxa.....	21.35.	0	97.18.	0	
	River Oronoko, ent.	8.46.	0		60.18.	0		River Bravo, ent. ..	25.55.	0	97.25.	0	
	Testigos Islands ..	11.23.15			63.10.30			St. Louis I., E. end	29.10.	0	96.5.0		
	Blanca, North point	11.55.13			64.32.30			River Mississippi, ent.	28.57.	0	89.13.	0	
	Margarita Isle, } Galera point ..	11.6.30			64.4.30			New Orleans	29.57.45		90.11.	0	
	Do., Cape Isla	11.10.	0		63.58.12			Mobile Point	30.10.	0	98.0.0		
	Do., Cape Robledar	11.2.24			64.28.43			Pensacola	30.24.	0	87.11.30		
	Tortuga, East point	10.54.45			65.16.30			Cape St. Blas.....	29.41.	0	86.2.0		
	Ditto, centre	10.59.	0		65.34.13								
Is. adj. to Columbia.	Orchilla, East end	11.49.45			66.9.15		East Florida.	Bay of Apalache ..	30.0.	0	84.45.	0	
	Roca, N. E. point..	11.58.30			66.42.20			Spirito Santo Harb.	27.38.	0	83.20.	0	
Is. adj. to Columbia.							East Florida.	Carlos Bay.....	26.29.	0	82.33.	0	
								Point Larga	25.38.	0	82.3.	0	
Is. adj. to Columbia.							East Florida.	Dry Tortugas.....	24.31.	0	83.10.	0	
								Cape Sable.....	25.2.	0	81.15.	0	
Is. adj. to Columbia.							East Florida.	Cape Florida	25.41.30		80.5.	0	

TABLE LVIII.

6

LATITUDES AND LONGITUDES.

Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
WEST INDIA ISLANDS.							
	° ' "	° ' "	h m		° ' "	° ' "	h m
St. Town	32. 22. 0 N	64. 30. 0 W	7. 49	Mogane I., N.W. pt.	22. 30. 40 N	73. 8. 0 W	
Reck Hill	32. 15. 0	64. 47. 0		Do., S.W. point	22. 21. 40	73. 11. 0	
Reef	32. 9. 0	64. 57. 0		Do., East Reef	22. 20. 0	72. 43. 30	
hern Rock	32. 33. 30	64. 37. 0		Hogsties, E. most Isle	21. 38. 50	73. 56. 4	
				Little Heneaga, E. pt.	21. 27. 0	72. 56. 0	
Reef, N. end	27. 34. 0	79. 9. 0		Ditto, West point	21. 27. 0	73. 6. 0	
Rock	26. 55. 0	79. 2. 0		Gt. Heneaga, N.E. pt.	21. 19. 0	73. 2. 0	
ama W. end	26. 43. 30	78. 56. 0		Ditto, N.W. point	21. 9. 0	73. 40. 30	
end	26. 28. 0	77. 50. 0		Ditto, S.W. point	20. 54. 0	73. 38. 30	
ie Rock	25. 25. 0	77. 7. 30					
st Point	26. 17. 0	76. 56. 0		Great Caycos, S. pt.	21. 34. 0	71. 27. 0	
e, N.E. pt.	26. 29. 52	77. 3. 28		Shoal off Cape Comet	21. 47. 15	71. 20. 0	
cky point	26. 17. 20	77. 5. 55		Booby Rocks off	21. 57. 30	72. 4. 45	
th point	25. 50. 20	77. 20. 5		North Caycos			
y, S. point	26. 35. 0	76. 55. 0		Providence Caycos	21. 50. 0	72. 21. 30	
	27. 1. 0	78. 16. 0		N. W. point			
				Little Caycos, S.W. pt.	21. 36. 15	72. 26. 0	
				Sandy Key	21. 18. 40	72. 2. 40	
				South Keys	21. 1. 0	71. 30. 15	
Frozen Key	25. 35. 30	77. 42. 0	7. 30	Turks I., N. point,	21. 31. 0	71. 4. 0	
ey, NW. pt.	25. 49. 0	77. 55. 0		Grand Key			
Bank,				Ditto, Salt Key	21. 21. 0	71. 7. 0	
point	24. 0. 0	80. 20. 15		Ditto, Sand Key	21. 11. 0	71. 10. 30	
it Key	23. 41. 0	80. 13. 0		Do., Endymion's	21. 6. 0	71. 15. 0	
S. E. point	23. 29. 0	79. 22. 0		Rocks			
ac Rock	26. 2. 15	79. 8. 45		Square Handker-	21. 23. 0	70. 24. 0	
ac Rock	25. 57. 0	78. 50. 50		chief, N. E. end			
les, W. side	25. 36. 0	79. 17. 0		Ditto, N. W. end	21. 23. 0	70. 32. 0	
Dutch Key	22. 47. 0	77. 58. 0		Ditto, S. W. end	20. 53. 0	70. 55. 40	
ey	22. 24. 50	77. 36. 30		Silver Keys, S. E. end	20. 13. 50	69. 27. 45	
Point	22. 10. 0	77. 12. 0		Ditto, N. E. end	20. 31. 0	69. 26. 0	
Key	24. 54. 0	79. 7. 0		Ditto, West End	20. 30. 0	69. 59. 0	
ey	25. 23. 0	79. 11. 0					
vidence,				Cape Maize	20. 13. 40	74. 1. 15	
Lt. house	25. 5. 18	77. 19. 0	7. 30	Point Mulas	21. 11. 30	75. 38. 0	
est end	25. 0. 0	77. 37. 0		Cayo Romano	21. 53. 0	77. 36. 45	
ast end	25. 1. 0	77. 13. 0		Point Paridon	22. 28. 0	78. 4. 0	
nd	25. 31. 5	76. 52. 45		Cruz del Padrac	23. 14. 0	80. 56. 30	
Isle, N. pt.	25. 30. 0	76. 37. 0		Point Ycaos	23. 9. 0	81. 10. 0	
Isle,				Matanza Peak	23. 1. 39	81. 45. 2	
s point.	24. 37. 0	76. 9. 0		Havannah, Ft. Morro	23. 9. 27	88. 22. 53	
Isle, NW. pt.	23. 39. 0	75. 45. 0		Honda Bay	22. 59. 0	83. 7. 0	
Long I.,				Cape Antonio	21. 54. 0	84. 56. 15	
point	23. 32. 0	75. 37. 0		Cape Corrientes	21. 44. 30	84. 28. 37	
E. point	22. 52. 0	74. 50. 0		Isle of Pines, S.W. end	21. 32. 0	82. 59. 0	
de	22. 2. 0	75. 2. 0		Ditto, Hills	21. 35. 0	82. 37. 0	
				Cape Cruz	19. 48. 0	77. 35. 0	
Stocking I.	23. 52. 0	75. 50. 0		St. Jago de Cuba	19. 57. 20	76. 4. 30	
ad, N. point	24. 37. 0	75. 36. 0		Cumberland Harb.	19. 53. 30	75. 10. 20	
outh point	23. 57. 0	75. 17. 0					
land	24. 26. 0	75. 50. 0		Morant Keys, N.E.	17. 26. 30	75. 54. 0	
				Key			
's I., N.E. pt.	24. 8. 0	74. 19. 0		Ditto, S. W. Key	17. 24. 0	75. 56. 0	
W. point	23. 56. 30	74. 30. 0		Morant Pt., Jamaica	17. 58. 0	76. 8. 0	
and	23. 39. 0	74. 45. 0		North-East Pt., do.	18. 13. 0	76. 16. 0	
Key, W. pt.	23. 9. 10	73. 47. 40		Port Antonio	18. 15. 0	76. 23. 0	
ast point	23. 10. 0	73. 37. 0		Galina Point	18. 29. 0	76. 54. 0	
I., W. point	22. 48. 0	74. 17. 15		St. Ann's	18. 31. 0	77. 16. 0	
ast point	22. 43. 0	73. 48. 0		Martha Brae	18. 32. 0	77. 44. 0	
Key,				Montego Bay	18. 30. 0	77. 54. 0	
Island	22. 7. 30	74. 17. 0		North Negril	18. 24. 0	78. 30. 0	
ey, S. W. pt.	22. 28. 0	74. 18. 0		South Negril	18. 16. 0	78. 32. 0	
vos Keys	22. 8. 0	74. 33. 40		John's Point	18. 12. 0	78. 23. 0	
s, West end	22. 42. 30	73. 33. 0		Savannah le Mer	18. 13. 0	78. 15. 0	
				Portland Point	17. 43. 0	77. 2. 0	

LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.
Port Royal, Jamaica	17. 58. 0 N	76. 52. 30 W		Anegada, N.W. pt.	18. 46. 0 N	64. 26. 0
Kingston, ditto	18. 0. 30	76. 45. 0		Ditto, S. E. point ..	18. 44. 0	64. 17. 0
Portland Rock	17. 14. 0	77. 10. 0		Santa Cruz, the Port	17. 44. 8	64. 48. 0
Caymanbrack, W. pt.	19. 39. 0	79. 48. 0		Sombrera	18. 38. 0	63. 25. 0
Little Cayman	19. 36. 0	80. 5. 0		Anguilla, N.E. point	18. 16. 0	63. 2. 0
Grand Cayman, } S.W. point	19. 12. 0	81. 26. 0		Ditto, S.W. point ..	18. 11. 0	63. 16. 0
Ditto, N.E. point ..	19. 18. 0	81. 0. 0		St. Martin, NW. pt.	18. 4. 26	63. 14. 0
Swan Islands,	17. 22. 0	83. 56. 0		St. Bartholomew ..	17. 56. 45	62. 50. 0
Pedro Shoals, } Rattlesnake	17. 24. 0	78. 56. 0		Saba, Ladder point	17. 39. 30	63. 18. 0
Ditto, Keys	17. 1. 0	77. 38. 0		Aves, or Birds Is. ..	15. 30. 18	63. 38. 0
Ditto, Sola Isle	17. 8. 0	77. 20. 0		St. Eustatius, Town	17. 29. 30	63. 4. 0
Formigas Shoal, } N. E. point	18. 35. 0	75. 38. 0		St. Christ., Basseterre	17. 19. 30	62. 49. 0
Ditto, S. E. point ..	18. 29. 0	75. 40. 0		Nevis, South point	17. 5. 12	62. 33. 0
Ditto, S. W. point ..	18. 28. 0	75. 48. 0		Barbuda	17. 38. 0	61. 50. 0
Navassa Island	18. 22. 19	75. 7. 45		Antigua, St. John ..	17. 9. 30	61. 54. 0
C. St. Nicholas, Mole	19. 49. 20	73. 29. 33		Do., English Harbour	17. 3. 0	61. 50. 0
Point St. Mark	19. 2. 18	72. 48. 19		Redondo	17. 1. 0	62. 19. 0
Gonave I., N. E. pt.	18. 49. 10	73. 0. 52		Montserrat, NE. pt.	16. 47. 35	62. 13. 5
Ditto, West point ..	18. 57. 0	73. 17. 0		Guadaloupe, Ft. Louis	16. 15. 0	61. 35. 0
Port au prince, } Fort Ilet	18. 33. 42	72. 27. 11		Do., Chateau point	16. 13. 0	61. 14. 0
Petit Goave	18. 27. 0	72. 51. 0		Do., Old Fort point	15. 56. 0	61. 46. 0
The Caymites	18. 40. 0	73. 42. 0		Do., Basseterre	15. 59. 30	61. 48. 1
Fort Jeremy	18. 40. 0	74. 13. 22		Do., English Head	16. 23. 0	61. 51. 0
Cape Donna Maria	18. 37. 20	74. 26. 0		Desada I., N.E. pt.	16. 20. 0	61. 50. 0
Cape Tiberon	18. 19. 25	74. 34. 0		Saints I., NW. part }	15. 51. 25	61. 41. 2
Point Abacou	18. 1. 30	73. 46. 0		of West Isle ..	15. 51. 0	61. 19. 0
Fort St. Louis	18. 14. 30	73. 31. 30		Marigalante, S. pt.	15. 35. 30	61. 33. 0
Altavella Rock	17. 30. 0	71. 20. 0		Dominica, Prince }	15. 18. 23	61. 28. 0
Cape Beata	17. 43. 0	71. 20. 0		Rupert's Bay ..	15. 12. 0	61. 26. 0
St. Domingo, or Hayti	18. 30. 0	69. 49. 0		Martinique, Ft. Royal	14. 35. 49	61. 5. 4
St. Catharine's Isle	18. 19. 0	69. 1. 0		Do., Port St. Pierre	14. 44. 0	61. 17. 0
Cape Enganno	18. 34. 42	68. 24. 37		Do., Mucaba point	14. 54. 0	61. 21. 0
Cape Raphael	19. 2. 0	63. 53. 0		Do., Cape Salines ..	14. 23. 0	60. 58. 0
Cape Samana	19. 18. 0	68. 59. 0		Do., Diamond Rock	14. 25. 0	61. 3. 0
Cape Cabron	19. 21. 0	69. 13. 0		St. Luci, Careenage	13. 57. 0	61. 7. 0
Old Cape François	19. 40. 30	70. 1. 15		Ditto, Point Piton ..	13. 42. 0	61. 13. 0
Point Isabella	19. 58. 43	71. 16. 35		Do., Moulacique pt.	13. 35. 0	61. 2. 0
La Grange Point ..	19. 54. 35	71. 48. 51		St. Vincent, Kingston	13. 11. 0	61. 16. 0
Rock off Ditto	20. 0. 30	71. 40. 25		Barbadoes, N. point	13. 19. 0	59. 44. 0
Port Dauphin	19. 38. 30	71. 53. 0		Ditto, Bridge Town	13. 5. 30	59. 43. 1
Cape François, Town	19. 46. 20	72. 17. 55		Ditto, South point ..	13. 2. 0	59. 36. 0
Tortudas, E. point	20. 0. 55	72. 35. 55		Granadillos, Be- }	13. 1. 0	61. 16. 0
Ditto, West point ..	20. 5. 20	72. 54. 56		conia Isle	12. 30. 0	61. 31. 0
La Mona Isle	18. 6. 0	67. 50. 0		Ditto, Curiaou Isle	12. 2. 54	61. 48. 0
La Monica Isle	18. 9. 0	67. 51. 0		Grenada, Fort Royal	12. 13. 0	61. 30. 4
Zachee Isle	18. 23. 48	67. 34. 1		Ditto, N. E. point ..	11. 58. 0	61. 52. 0
Porto Rico, Point }	18. 31. 18	67. 12. 18		Tobago, Man of }	11. 22. 0	60. 32. 0
Bruquin	18. 29. 10	66. 13. 15		War Bay	11. 8. 0	60. 53. 0
Ditto, St. Juan	18. 23. 0	65. 32. 15		Ditto, S.W. end	10. 42. 0	61. 52. 0
Ditto, Cape St. Juan	17. 57. 0	65. 56. 0		Trinidad, Grand Boca	10. 41. 0	61. 43. 0
Ditto, Point Carrelas	17. 58. 30	67. 11. 0		Do., Chagaramus Bay	10. 39. 15	61. 34. 1
Ditto, Los Morillos	18. 20. 30	65. 3. 6		Ditto, Spanish Town	10. 4. 0	61. 58. 0
St. Thomas' I., Harb.	18. 23. 30	64. 39. 0		Ditto, Icaque point	10. 9. 0	61. 0. 0
Tortola Bay	18. 20. 30	64. 47. 9		Ditto, Point Galote	10. 50. 0	60. 56. 0
St. John's, E. Cape	18. 13. 0	64. 55. 0		Ditto, Point Galera		
Bird's Key	18. 31. 7	64. 25. 24				
Virgin Gorda, E. Cape						

TABLE LVIII.

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LATITUDES AND LONGITUDES.

Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
	° ' " N	° ' " W	A M		° ' " N	° ' " W	A M
igh Inlet	27. 14. 0	80. 12. 0	W	Gay Head	41. 21. 0	70. 48. 0	W
veral	28. 16. 0	80. 24. 0		Nantucket Shoal, } S. end	40. 53. 0	69. 36. 0	
nost Shoals	28. 16. 0	80. 6. 0		Nantucket I., Light	41. 23. 0	70. 1. 0	
tine	29. 48. 0	81. 18. 0	7. 30	Do., Tom Never's	41. 14. 0	69. 57. 0	
River, ent.	30. 18. 0	81. 30. 0		Head	41. 45. 0	68. 34. 0	
, N. end	30. 40. 0	81. 35. 0		St. George's Bank, } Middle	41. 45. 0	68. 34. 0	
's Sound	31. 2. 0	81. 28. 0		Sandy Point	41. 34. 0	69. 55. 0	
ine's Sound	31. 19. 0	81. 30. 0		Cape Cod Lighthouse	42. 3. 0	70. 6. 0	11. 30
ine's Sound	31. 40. 0	81. 9. 0		Plymouth	41. 59. 0	70. 45. 0	11. 30
ine's Sound	31. 45. 0	81. 12. 0		Boston, Town	42. 24. 0	71. 3. 0	11. 30
Lt. house	32. 0. 45	80. 55. 45	11. 15	Ditto, Lighthouse	42. 21. 0	70. 53. 0	
al	32. 12. 0	80. 31. 0		New Cambridge	42. 23. 0	71. 4. 0	
n	32. 50. 0	79. 50. 0		Salem	42. 34. 0	70. 53. 0	11. 30
ghthouse	32. 43. 30	79. 46. 0	7. 0	Baker's I., Light	42. 32. 0	70. 50. 0	
aan	33. 3. 0	79. 11. 0		Cape Ann, } Thatcher's Light	42. 40. 0	70. 38. 0	11. 30
own Light	33. 14. 0	78. 56. 0	6. 40	Ipswich	42. 43. 0	70. 55. 0	
k	34. 3. 0	78. 13. 0		Newbury Port, Light	42. 48. 0	70. 51. 0	11. 15
r Light	33. 51. 15	78. 17. 0		Isle of Shoals	42. 57. 0	70. 38. 0	
t Shoal	33. 36. 0	77. 54. 0		Portsmouth, Town	43. 5. 0	70. 46. 0	11. 15
on	34. 12. 0	78. 8. 0	11. 0	Ditto, Lighthouse	43. 4. 0	70. 44. 0	11. 15
r Inlet	34. 23. 0	77. 40. 0		Boon Island	43. 7. 0	70. 27. 0	
s entrance	34. 40. 0	76. 47. 0		York River	43. 7. 0	70. 37. 0	
k-out	34. 34. 0	76. 38. 0	10. 30	Cape Neddock	43. 11. 0	70. 35. 0	
ls, SE. part	34. 22. 0	76. 33. 0		Nubble	43. 21. 0	70. 25. 0	
ls, SE. part	34. 42. 0	76. 47. 0		Cape Porpoise	43. 23. 0	70. 30. 0	
Inlet	35. 5. 0	77. 15. 0		Biddeford	43. 4. 0	69. 15. 0	
Inlet	34. 3. 0	76. 2. 0		Cashes Bank, Middle	43. 33. 0	70. 12. 0	10. 45
teras	35. 14. 30	75. 34. 27	9. 0	Casco Bay, Cape } Elizabeth	43. 46. 0	70. 12. 0	
ls, SE. part	34. 54. 0	75. 22. 0		Ditto, Yarmouth	43. 39. 0	70. 15. 0	10. 45
Inlet	35. 51. 0	75. 56. 0		Do., Portland Light	43. 43. 0	70. 13. 0	
ary, Light	36. 57. 0	75. 47. 0	7. 0	Ditto, Casco	43. 52. 0	70. 0. 0	
ries	37. 12. 30	75. 45. 30	7. 0	Brunswick	43. 43. 0	69. 47. 0	10. 45
burg	37. 15. 50	76. 54. 15		Kennebeck River, } entrance	43. 41. 0	69. 46. 0	
d	38. 6. 0	77. 8. 0		Seguin Island	43. 42. 0	69. 38. 0	
s	39. 0. 0	76. 45. 0		Bantum Ledge	43. 49. 0	69. 39. 0	
s	39. 22. 0	76. 50. 0		Townsend Bay, ent	43. 48. 0	69. 30. 0	
ton	38. 55. 0	76. 58. 45		Pennaquid Point	43. 44. 0	69. 16. 0	
pe	33. 27. 0	75. 6. 0		Manheigen Island	43. 48. 0	68. 50. 0	
nes, or }	38. 46. 0	75. 6. 30	9. 0	Ball Rock	43. 53. 0	68. 51. 0	
en	38. 47. 27	75. 9. 48		Metinicus Island	44. 24. 0	68. 45. 0	10. 45
de	39. 39. 0	75. 32. 0		Penobscot	44. 0. 0	68. 30. 0	
hia	39. 56. 55	75. 11. 30	2. 0	Holt Island	44. 6. 0	68. 17. 0	
y	38. 56. 46	74. 53. 6	8. 40	Long Island, Blue- } hill Bay	43. 52. 0	68. 10. 0	
g Harbour	39. 18. 0	74. 32. 0		Mount Desert Rock	44. 25. 0	68. 1. 0	11. 0
g Harbour	39. 30. 0	74. 22. 0		Gouldsboro' Harb.	44. 27. 0	67. 48. 0	
ok Lt. house	40. 25. 0	74. 13. 0	7. 30	Pleasant Bay	44. 40. 0	67. 24. 0	
iboy	40. 30. 0	74. 33. 0		Machios Bay, Crossl.	44. 37. 0	66. 54. 0	
k, Battery	40. 42. 6	73. 59. 0	8. 54	Western Seal Island	44. 43. 0	67. 0. 0	
Point	41. 1. 1	71. 58. 0		Manan Island, S. pt.	45. 3. 0	66. 50. 0	
en	41. 17. 7	72. 59. 10		Wolf Islands	45. 2. 30	67. 1. 0	
cut River	41. 16. 0	72. 25. 0		Campo Bello I., N. end	45. 7. 0	67. 8. 0	
idon Light	41. 21. 8	72. 9. 30		St. Croix River, ent	45. 18. 0	66. 4. 0	
and	41. 10. 0	71. 39. 0	7. 37	Macgone Island	45. 16. 0	65. 52. 0	
dith	41. 24. 0	71. 30. 0		Cape Spencer	45. 24. 0	64. 49. 0	
ce	41. 50. 40	71. 19. 45		Cape Chignecto	45. 19. 0	64. 52. 0	
and, Light	41. 27. 0	71. 24. 0	7. 37	Haute Island	44. 45. 30	65. 46. 30	10. 0
s Bay, ent.	41. 30. 0	71. 19. 0		Annapolis Royal	44. 19. 0	66. 25. 0	
s Bay, ent.	41. 28. 0	70. 57. 0		Briers Island	44. 12. 0	66. 13. 0	
ford	41. 39. 0	70. 55. 0	7. 37	Cape St. Mary			
Land	41. 33. 0	70. 35. 0					
Vine-	41. 15. 0	70. 46. 0					
l. point	41. 21. 0	70. 24. 0					
ket Head	41. 17. 0	70. 44. 0					

LATITUDES AND LONGITUDES.

Names of Places.	Latitude.	Longitude.	high water	Names of Places.	Latitude.	Longitude.	high water
Cape Fouchin	43. 51. 30 N	66. 10. 30 W		Anticosta Isle, E. pt.	49. 9. 0 N	61. 52. 0 W	
Gannet Rock.....	43. 40. 40	66. 9. 45		Ditto, South point..	49. 6. 0	62. 19. 0	
Seal Isles, S. point	43. 25. 25	66. 0. 35	8. 45	Ditto, S. W. point	49. 22. 0	63. 30. 0	
Cape Sable.....	43. 23. 45	65. 29. 45	8. 0	Do., Jupiter's Inlet	49. 26. 0	63. 31. 0	
Cape Negro Island	43. 33. 0	65. 18. 0		Ditto, West point..	49. 50. 0	64. 20. 0	3. 30
Port Roseway, Light	43. 39. 0	65. 13. 0		Ditto, North point	49. 52. 0	64. 0. 0	
Port Mansfield	43. 50. 0	64. 52. 0		Magdalen Is., N. E. pt.	47. 41. 0	61. 5. 0	
Gambier Harbour..	44. 0. 0	64. 41. 0		Amherst I., S. W. pt.	47. 15. 0	61. 48. 0	
Liverpool	44. 5. 0	64. 40. 0		Entry Island	47. 17. 0	61. 25. 0	
Port Jackson	44. 10. 0	64. 28. 0		Deadman's Island	47. 17. 0	61. 58. 0	
Sambro Head, Light	44. 30. 0	63. 33. 0	8. 0	Biron Island	47. 52. 0	61. 12. 0	
Halifax Harbour ..	44. 44. 0	63. 35. 45	7. 30	Bird's Islands	47. 55. 0	60. 46. 0	
Port Stephens.....	45. 0. 0	61. 58. 0		St. Paul's Island ..	47. 11. 30	60. 2. 0	
Sandwich Harbour	45. 8. 0	61. 36. 0	9. 0				
Torbay	45. 12. 0	61. 16. 0		Cape Ray	47. 37. 0	59. 13. 0	
Port Howe	45. 14. 0	61. 3. 0		Cape Anguille	47. 55. 0	59. 22. 0	
Cape Canso Harbour	45. 20. 7	60. 54. 45	8. 30	Cape St. George....	48. 28. 0	59. 15. 0	
Sable Island, E. pt.	44. 4. 0	60. 0. 0		South Head	49. 6. 0	58. 28. 0	
Ditto, West point ..	44. 4. 0	60. 30. 0		Cape St. Gregory ..	49. 20. 0	58. 20. 0	
				Bon Bay.....	49. 36. 0	58. 5. 0	
Cape Hinchinbroke	45. 34. 0	60. 36. 0		Ingonhehoix	50. 37. 17	57. 15. 15	
St. Esprit	45. 37. 0	60. 27. 0		Point Riche	50. 40. 10	57. 23. 0	
Cape Portland	45. 48. 0	60. 3. 0		St. John's Bay	50. 50. 0	57. 18. 0	
Louisbourg	45. 53. 40	59. 54. 45	7. 15	Point Ferrolle	51. 2. 0	57. 11. 0	
Scattery Island	46. 1. 0	59. 38. 0		Seal Islands	51. 20. 0	56. 50. 0	
Flint Island	46. 9. 0	59. 43. 0		Cape Norman	51. 38. 23	56. 0. 0	
Spanish Bay	45. 13. 0	60. 8. 0		Belle Isle	51. 57. 0	55. 30. 0	
Port Dauphin	46. 21. 0	60. 30. 0		Cape Degrat	51. 40. 0	55. 30. 0	
Cape North	47. 6. 0	60. 28. 0		St. Lunaire Bay ..	51. 28. 57	55. 29. 45	
Cheticum Harbour	46. 42. 0	60. 58. 0		Cape St. Anthony..	51. 20. 0	55. 36. 0	
Sea Wolf.....	46. 27. 0	61. 12. 0		Hare Bay, entrance	51. 17. 0	55. 45. 0	
Port Hood	46. 2. 0	61. 33. 0		Croque Harbour ..	51. 3. 0	55. 53. 0	6. 30
				Groais I-Is, N. end	51. 0. 0	55. 42. 0	
Cape North	47. 7. 0	63. 44. 0		Green Island	50. 47. 0	55. 35. 0	
West point.....	46. 37. 0	64. 10. 0		Horse Islands	50. 21. 0	56. 51. 0	
Cape Egmont	46. 28. 0	63. 50. 0		Cape Partridge	50. 16. 0	56. 12. 0	
Hillsborough Bay..	46. 6. 0	62. 56. 0		Cape St. John	50. 10. 0	55. 38. 0	
Charlotte Town....	46. 14. 0	62. 56. 0		Newbay Head	49. 57. 0	55. 26. 0	
Port Joy	46. 11. 0	62. 57. 0		Twillingate Islands	50. 3. 0	54. 40. 0	
Cape Bear	46. 3. 0	62. 13. 0		Fogo Island	50. 0. 0	53. 54. 0	
George Town	46. 14. 0	62. 20. 0		Woodham Islands..	49. 55. 0	53. 30. 0	
East point	46. 27. 0	61. 46. 0		Cape Freels	49. 34. 0	53. 0. 0	
Richmond Bay	46. 38. 0	63. 27. 0		Cape Bonavista	48. 42. 5	52. 56. 0	
				Point Grates	48. 22. 0	52. 32. 0	
Gut of Canso, N. ent.	45. 44. 0	61. 31. 0		Cape St. Francis..	47. 57. 0	52. 30. 0	
Cape St. George ..	45. 52. 0	62. 0. 0		St. John's Fort ..	47. 33. 45	52. 39. 45	6. 0
Pictou Island	45. 51. 0	62. 30. 0		Bull Bay.....	47. 21. 0	52. 29. 0	
Cape Tormentine ..	46. 9. 0	63. 36. 0		Cape Broyle	47. 8. 0	52. 35. 0	
Richibucto Harbour	46. 44. 0	64. 36. 0		Ranin Rocks.....	46. 57. 0	52. 42. 0	
Escuminac Point ..	47. 3. 0	64. 33. 0		Cape Ballard	46. 49. 0	52. 50. 0	
Miscou I. Chaleur Bay	48. 4. 0	64. 14. 0		Cape Race	46. 40. 0	53. 3. 15	
Cape Despair.....	48. 27. 0	63. 57. 0		Cape Race Rocks ..	46. 30. 0	54. 30. 0	
Bonaventure Isle ..	48. 33. 0	63. 48. 0		Trepasse Bay.....	46. 43. 0	53. 16. 0	
Flat Point	48. 38. 0	63. 48. 0		Cape Pine	46. 44. 0	53. 30. 0	
Cape Gaspé	48. 47. 0	63. 50. 0		Cape St. Mary	46. 52. 0	54. 7. 0	
Magdalen River....	49. 13. 0	64. 43. 0		Point Brearn	46. 59. 0	54. 12. 0	
St. Ann's River	49. 8. 0	66. 8. 0		Virgin Rocks.....	47. 9. 0	54. 5. 0	
Cape Chat	49. 9. 0	66. 20. 0		Red Island, S. point	47. 24. 0	54. 8. 0	
Mount Camille	48. 37. 0	67. 20. 0		Mortier Harbour ..	47. 10. 0	55. 3. 0	
Bic Island	48. 30. 0	68. 26. 0		Mortier Rocks	47. 0. 0	54. 58. 0	

A concise Alphabetical Reference to the principal Coasts and Islands contained in the preceding Table of Latitudes and Longitudes ; very useful in finding out particular places.

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FORM OF A TRANSIT TABLE.

SINCE the method of determining the latitude by the meridional altitudes of the fixed stars and planets is now become generally prevalent in most sea-going ships, and since it is essentially necessary, and conducive to the accuracy of the result, to be duly apprized of the mean times of transit; the navigator should, therefore, have a small book made, containing all the stars that will transit, or pass over the meridian of his ship during night:—this book might be called a Transit Table (or any other appropriate epithet), and should be kept in the binnacle, or some other convenient place, where all concerned could have easy and constant access to it: the book should be ruled, and the columns filled agreeably to the following form:—

Names, or characters of the Stars.	Declination.	Days of the Month.—suppose January 1824.—								
		1	2	3	4	5	6	7	8	9
		Mean Time of Transit.								
β Cassiopeiæ ..	58.10.47 N	5.15.13	5.10.48	5. 6.23	5. 1.59	4.57.34	4.53.11	4.48.52	4.44.29	4.40. 7
Algenib.....	14.12.21 N	5.19.14	5.14.49	5.10.24	5. 6. 0	5. 1.35	4.57.12	4.52.53	4.48.30	4.44. 8
β Hydri	78.15. 7 S	5.30.32	5.26. 7	5.21.42	5.17.18	5.12.53	5. 8.30	5. 4.11	4.59.48	4.55.26
α Phœnicis....	43.15.12 S	5.32.35	5.28.10	5.23.45	5.19.21	5.14.56	5.10.33	5. 6.14	5. 1.51	4.57.39
δ Andromedæ ..	29.53. 0 N	5.45. 8	5.40.43	5.36.18	5.31.54	5.27.29	5.23. 6	5.18.47	5.14.24	5.10. 2
Schedir	55.34.15 N	5.45.32	5.41. 7	5.36.42	5.32.18	5.27.53	5.23.30	5.19.11	5.14.48	5.10.26
Deneb Kaitos ..	18.57.17 S	5.50. 6	5.45.41	5.41.16	5.36.52	5.32.27	5.28. 4	5.23.45	5.19.22	5.15. 0
γ Cassiopeiæ ..	59.45.43 N	6. 1.14	5.56.49	5.52.24	5.48. 0	5.43.35	5.39.12	5.34.53	5.30.30	5.26. 8
Alruccabah....	88.22.12 N	6.12.54	6. 8.29	6. 4. 4	5.59.40	5.55.15	5.50.52	5.46.33	5.42.10	5.37.48
Mirach	34.41.14 N	6.15. 8	6.10.43	6. 6.18	6. 1.54	5.57.29	5.53. 6	5.48.47	5.44.24	5.40. 2
δ Cassiopeiæ ..	59.19. 2 N	6.29.17	6.24.52	6.20.27	6.16. 3	6.11.38	6. 7.15	6. 2.56	5.58.33	5.54.11
Achernar	58.15.24 S	6.45.56	6.41.31	6.37. 6	6.32.42	6.28.17	6.23.54	6.19.35	6.15.12	6.10.50
ϵ Cassiopeiæ ..	62.47.59 N	6.56.19	6.51.54	6.47.29	6.43. 5	6.38.40	6.34.17	6.29.58	6.25.35	6.21.13
Baten Kaitos ..	11.12.18 S	6.57.53	6.53.28	6.49. 3	6.44.39	6.40.14	6.35.51	6.31.32	6.27. 9	6.22.47
And so on to the Star α Lupi, which passes the Meridian on the 1st of the given Month, at 19 ^h . 42 ^m . 41 ^s .										
Saturn.....	14 46. 0 N	8.16. 0	8.12. 0	8. 7. 0	8. 3. 0	7.58. 0	7.54. 0	7.49. 0	7.45. 0	7.40. 0
Jupiter	23.17. 0 N	11.38. 0	11.33. 0	11.28. 0	11.23. 0	11.18. 0	11.13. 0	11. 8. 0	11. 3. 0	10.58. 0
Mars	0 51. 0 N	17.31. 0	17.28. 0	17.25. 0	17.22. 0	17.19. 0	17.16. 0	17.12. 0	17. 9. 0	17. 6. 0

By extending the above Transit Table to the star α Lupi it will be seen that 137 fixed stars, exclusive of the three planets, will pass the meridian on the 1st night of the given month; by all of which the latitude may be very accurately determined, provided the night be sufficiently clear for observing their meridional altitudes.

Note.—The mean times of transit in the first column are to be computed by the following rule; viz:

From the right ascension of the star (increased by 24 hours if necessary), subtract that of the mean sun at noon of the given day, and the remainder will be the approximate time of transit; to which let the longitude, in time, be applied by addition in west, or subtraction in east, and the sum, or difference, will be the Greenwich time.

With the Greenwich time, thus found, enter Table XLVI., and find the corresponding minutes and seconds; which being added to the approximate time of transit if the Greenwich time precedes the noon of the given day, or subtracted therefrom if it be past that noon, the sum, or difference, will be the correct mean time of transit.

The transits in the 1st column, being thus carefully determined, may be reduced to several subsequent nights by continually subtracting therefrom the daily increase or variation of the mean sun's right ascension.

Remark.—All the stars whose declinations are greater than the latitude, and of the same name, will never set, or go below the horizon, in that latitude: those are called circumpolar stars, and will always pass the meridian below the Pole in 12 hours, diminished by half the daily variation of the mean sun's right ascension, after the times of transit found as above. (See Problem VIII., page 348.)

The least altitude of a circumpolar star indicates its being on the meridian below the Pole, which altitude will be expressed by the difference between the star's polar distance and the latitude of the place of observation.

The Author has invented a *Universal Stellarium*, which answers the purpose of a *general Transit Table*; it shows the correct mean times that the fixed stars will transit, or come to the meridian, in all parts of the world, without the trouble of calculation.

**MISCELLANEOUS NUMBERS, WITH THEIR CORRESPONDING LOGARITHMS, WHICH
MAY BE FOUND USEFUL ON VARIOUS OCCASIONS.**

tropical year = . . . 365. 5. 48. 48	equal to 31556928	Log. = 7.499095	Arith.Comp. = 2.500905
sidereal year = . . . 365. 6. 9. 11½	= 31558151½	do. = 7.499112	do. = 2.500888
mean year = . . . 354. 8. 48. 36	= 30617316	do. = 7.485967	do. = 2.514033
synodical Lunation = 29. 12. 44. 3	= 2551443	do. = 6.406786	do. = 3.593214
sidereal Lunation = 27. 7. 43. 5	= 2360585	do. = 6.373020	do. = 3.626980
revolutions of the Earth in a solar year	= 365.24222	do. = 2.562581	do. = 7.437419
revolutions of the Earth in a sidereal year	= 366.25642	do. = 2.563785	do. = 7.436215
mean solar day = 24h. 3m. 56s.5554	= 86636.5554	do. = 4.937701	do. = 5.062299
sidereal day = 23. 56. 4.0906	= 86164.0906	do. = 4.935326	do. = 5.064674
natural day = 24 hours	= 86400	do. = 4.936514	do. = 5.063486
one half ditto, or . . . 12 hours	= 43200	do. = 4.635484	do. = 5.364516
one fourth ditto, or . . . 6 hours	= 21600	do. = 4.334655	do. = 5.665345
one eighth ditto, or . . . 3 hours	= 10800	do. = 4.033424	do. = 5.966576
one twenty-fourth ditto, or 1 hour	= 3600	do. = 3.556303	do. = 6.443697
re equal to the radius, in deg. min. &c. = 57°. 17' 44" 48"	Log. sine = 9.925039	do. = 0.074961	
re equal to the radius, in deg. and dec. = 57°. 29' 57" 795	Logarithm = 1.758123	do. = 8.241877	
re equal to the radius, in min. and dec. = 3437". 74677	do. = 3.536274	do. = 6.463726	
re equal to the radius, in sec. and dec. = 206264". 8062	do. = 5.314425	do. = 4.685575	
circum. of a circle to diam. unity, or 1 = 3.14159265	do. = 0.497150	do. = 9.502850	
rea. of a circle to radius unity, or 1 = 3.14159265	do. = 0.497150	do. = 9.502850	
surface of a sphere to diam. unity, or 1 = 3.14159265	do. = 0.497150	do. = 9.502850	
sem. of a circle to diameter unity, or 1 = 0.7853982	do. = 9.895090	do. = 0.104910	
length of the arc of a circle of 1 deg. = 0.0174533	do. = 8.241878	do. = 1.758122	
solid content of a sphere to diam. unity, or 1 = 0.5235988	do. = 9.718999	do. = 0.281001	
solid content of a sphere to rad. unity, or 1 = 4.1887902	do. = 0.622089	do. = 9.377911	
Earth's circumference, in English miles = 24873	do. = 4.395728	do. = 5.604272	
Earth's diameter in ditto = 7917.5	do. = 3.898588	do. = 6.101412	
Earth's semidiameter in ditto = 3958.75	do. = 3.597558	do. = 6.402442	
Earth's diameter in English feet = 41804400	do. = 7.621222	do. = 2.378778	
Earth's semidiameter in ditto = 20902200	do. = 7.320192	do. = 2.679808	
Earth's diameter in nautical feet = 48138400	do. = 7.682492	do. = 2.317508	
Earth's semidiameter in ditto = 24069200	do. = 7.381462	do. = 2.618538	
Number of feet in a nautical mile = 6080	do. = 3.783904	do. = 6.216096	
Number of feet in an English mile = 5280	do. = 3.722634	do. = 6.277366	
Number of inches in an English mile = 63360	do. = 4.801815	do. = 5.198185	

Table showing the true time at which the hour and minute hands of a well-regulated watch, or clock, should be in conjunction, and, also, in opposition, in every revolution.

Number of Conjunctions.	Time of Conjunction.				Number of Oppositions.	Time of Opposition.			
	Hours.	Minutes.	Seconds.	Decimals.		Hours.	Minutes.	Seconds.	Decimals.
1	1	5	27	. 273	1	1	38	10	. 909
2	2	10	54	. 545	2	2	43	38	. 182
3	3	16	21	. 818	3	3	49	5	. 455
4	4	21	49	. 091	4	4	54	32	. 727
5	5	27	16	. 364	5	6	0	0	. 000
6	6	32	43	. 636	6	7	5	27	. 273
7	7	38	10	. 909	7	8	10	54	. 545
8	8	43	38	. 182	8	9	16	21	. 818
9	9	49	5	. 455	9	10	21	49	. 091
10	10	54	32	. 727	10	11	27	16	. 364
11	12	0	0	. 0	11	12	32	43	. 636

Notes.—The above Table was computed in the following manner, viz:—While the hour hand goes once round the dial-plate, the minute hand goes round it twelve times; hence the minute hand gains 11 complete rounds, over the hour hand, in every 12 hours: Therefore, as 11 hours, are to 12 hours; so is the next less hour to the true time of conjunction.—And, as 11 hours, are to 12 hours; so is the next less hour and its half, to the true time of the hands being in opposition.—Thus:—

To find the time that the hour and minute hands of a well-regulated watch, or clock, will be in conjunction, and also in opposition, between the hours of 1 and 2 o'clock.

As 11 hours : 12 hours :: 1 hour : 1^h. 5^m. 27^s. 273, which, therefore, is the true time of the hands being in conjunction.

And:

As 11 hours : 12 hours :: 1½ hour : 1^h. 38^m. 10^s. 909, which, therefore, is the true time of the hands being in opposition: and so on for the other conjunctions and oppositions.

CAPTAIN WILLIAM FITZWILLIAM OWEN'S

TABLE OF LATITUDES AND LONGITUDES.

THE following Table is an accurate copy of the several series of Latitudes and Longitudes established, astronomically and chronometrically, by WILLIAM FITZWILLIAM OWEN, Esq., Captain of his Majesty's ship *Eden* (late of the *Leven*), during his extensive survey of the coasts of Africa, Arabia, Madagascar, Brazil, &c. &c., between the years 1820 and 1826, inclusive: of which series Captain Owen has kindly allowed the publication in this work; and from that officer's general experience as a navigator, a practical astronomer, and an hydrographer, it is presumed that every degree of confidence may be placed in the positions of the places contained in this Table; particularly in such positions as have been determined under his own immediate observation, which have the *Leven*, or the *Leven* and *Barracouta* in the column of authorities.

Remark.—The Table in question has been *corrected* agreeably to the "Errata for the Tables of Latitudes and Longitudes compiled by Captain W. F. W. OWEN, R.N.," which "Errata" the author of this Work had the honour of receiving from the Hydrographical Office, at the Admiralty, in the year 1829.

COAST OF PORTUGAL.								
Places.	Points.	Lat. North.	Long. West.	In Time	Vari- ation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		° /	° /	h. m. s.	In Deg. & 10ths	h. m.		Major Franzini— Portuguese Engin- [cers]
.....	Castle of San Thiago	41.52.7	8.44.5	0.34.58				do.
.....	.....	41.42.6	8.43.2	0.34.53				do.
.....	.....	41.31.4	8.40.0	0.34.40				do.
nde	.....	41.21.3	8.35.6	0.34.22				do.
.....	St. J. of Poz, Castle of	41.08.9	8.37.0	0.34.28				do.
.....	Peak of Carragozo	40.50.0	8.21.3	0.33.24				do.
.....	New Bar	40.38.6	8.42.8	0.34.51				do.
.....	City	40.38.4	8.37.6	0.34.30				do.
.....	Mount. Sig. Trigon.	40.32.3	8.12.3	0.32.49				do.
.....	Mount. Sig. Trigon.	40.22.0	8.21.0	0.33.24				do.
.....	Mount. Sig. Trigon.	40.19.5	7.38.4	0.30.34				do.
.....	University Observa	40.12.5	8.24.4	0.33.38				do.
.....	Cape	40.11.9	8.53.8	0.35.35				do.
.....	Church	39.36.6	9.04.7	0.36.19				do.
l. Farilhão	Centre	39.29.3	9.33.0	0.38.12				do.
land	Look-out H., Turret	39.25.0	9.30.7	0.38.01				do.
.....	Cape Light House	39.21.8	9.24.6	0.37.38				do.
to	Mount. Sig. Trigon.	39.10.1	9.03.1	0.36.12				do.
.....	.....	38.57.4	9.24.8	0.37.39				do.
.....	Church	38.55.9	9.20.0	0.37.20				do.
.....	Cape Light House	38.46.5	9.30.1	0.38.00				do.
.....	Observatory	38.42.7	9.08.2	0.36.33	22.7			do.
.....	Arsenal	38.42.3	9.08.9	0.36.36				Leven in 1819 & 1822
.....	Cape Light House	38.24.9	9.13.1	0.36.52				Franzini
.....	Castle	37.57.5	8.52.4	0.35.30				do.
.....	Mountain, Notch in	37.20.0	8.35.4	0.34.22				do.
.....	Cape Convent	37.02.9	8.59.3	0.35.57				do.
.....	Point	37.06.2	8.39.4	0.34.48				do.
.....	Cape	36.55.6	7.49.2	0.31.17				do.
.....	St. Antonio of the hill	36.59.4	7.50.5	0.31.22				do.
.....	.....	37.09.7	7.42.2	0.30.49				do.
.....	.....	36.32.0	6.17.3	0.25.09				
ISLANDS IN THE ATLANTIC OCEAN.								
Western Is.		° /	° /	h. m. s.	In Deg. & 10ths	h. m.		
.....	Large Rock	37.16.8	25.54.3	1.43.37				These Longitudes
.....	Town	36.58.0	25.12.6	1.40.50				are taken from Mr.
.....	S. E. Point	36.56.8	25.06.0	1.40.24				Purdy's, which have
.....	S. W. Point	36.57.5	25.14.3	1.40.57				been proved by His
el	West Point	37.54.2	25.55.5	1.43.42	25.0			Majesty's Ship Leven
.....	Ponte Delgado, City	37.45.2	25.41.5	1.42.46				in 1820.
.....	East Point	37.48.2	25.10.3	1.40.41				
.....	Angra, Mte. do Brazil	38.38.6	27.12.8	1.48.51				
.....	S. E. Point	38.29.4	27.50.7	1.51.23				
.....	Peak Summit	38.26.2	28.28.2	1.53.53				
.....	SE Pt. Look-out Hill	38.30.2	28.41.9	1.54.48				
.....	North Point	39.33.5	31.08.5	2.04.34	18.5			
.....	South Point	39.41.2	31.03.0	2.04.12				
Islands.								
.....	Funchall Loo Rock	32.37.7	16.55.5	1.07.42	21.0			Leven in 1820.
.....	Pte. del Pargo, W. Pt.	32.49.0	17.15.9	1.09.03				do.
.....	East Point	32.43.9	16.38.2	1.06.33				do.
.....	Brazen-head, SE. ext	32.37.3	16.51.7	1.07.27				do.
to	Governor's House	33.02.9	16.18.8	1.05.15	23.5	12.3	0.9	do.
.....	North I., No. Extr.	32.36.5	16.33.0	1.06.12				do.
.....	South I., So. Extr.	32.28.5	16.31.3	1.06.05				do.
.....	Piton, Eastern Rock	30.03.5	16.02.5	1.04.10				do.
.....	Large Islet	30.07.9	15.54.6	1.03.38				do.
Islands.								
.....	San Cruz, Mole Head	28.27.9	16.15.0	1.05.00	20.0			do.

ISLANDS IN THE ATLANTIC OCEAN.									
Places.	Points.	Lat. North.	Long. East.	In Time	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.	
.....	Goat Island Centre	3.31.0	8.32.8	0.34.11	23.0	4.00	7	Eden in 1827.	
.....	Adelaide Islands ..	.....	8.33.8	.....	.....	.....	.....	{ Esk in 1827 (Capt. Purchas).	
nd	Fort St. Antonio ..	1.27.0	.....	.....	.....	.....	.....	Admiralty Chart.	
.....	The Brothers ..	1.23.0	7.19.8	.....	.....	.....	.....	{ Esk.	
Island	Man-of-War Bay ..	0.27.0	6.44.7	0.26.59	23.0	.....	.....	Capt. Sabine in 1822.	
.....	Cabrita Island ..	0.27.0	6.39.8	.....	.....	.....	.....	{ Esk.	
.....	.....	0.25.0	6.45.0	0.27.0	.....	.....	.....	Pheasant (Cap. Kelly)	
.....	{ Anna de Chaves anchorage ..	0.20.5	6.46.0	0.27.4	.....	.....	.....	do.	
.....	Rolle Island ..	.....	6.36.5	0.26.26	.....	.....	.....	{ N. Star, 1827 (Capt. Arabin).	
.....	East Point ..	.....	5.42.8	.....	.....	.....	.....	{ Esk in 1827.	
nd	Fort St. Antonio ..	1.27.0	.....	.....	.....	.....	.....	Barracouta in 1826.	
Island	M. of War Bay, ManH	0.27.0	6.44.7	0.26.59	23.0	.....	.....	Capt. Sabine in 1822.	
.....	Roadstead ..	0.27.0	6.49.0	0.27.17	.....	.....	.....	do.	
agers in Ocean.	.....	North.	West.	.....	.....	.....	.....	.....
n. Pedro	.....	0.55.0	29.15.0	1.57.00	6.0	.....	.....	1802. Common auth.	
oronha	Pyramid ..	3.55.3	32.16.5	2.09.06	0.0	4.00	6	Sir T. Brisbane, 1821.	
.....	.....	3.52.5	33.07.0	2.12.28	0.0	4.00	6	Deduced from above.	
Island ..	NW. Bay anchorage	7.54.0	14.26.0	0.57.46	13.0	.....	.....	Leven in 1826.	
.....	James Town ..	15.54.8	5.44.8	0.22.59	17.5	.....	.....	do.	
.....	Largest Rock ..	20.29.4	28.54.3	1.55.37	.....	.....	.....	Leven in 1822.	
.....	South Point ..	20.31.0	29.21.7	1.57.27	5.0	.....	.....	do.	
unha ..	Waterfall ..	37.06.1	12.16.0	0.49.04	9.3	.....	8	1813.—By Captain Hey-	
Island	Centre ..	37.17.0	12.33.0	0.50.12	.....	.....	.....	wood's meridian dis-	
Island	.....	37.26.0	12.21.0	0.49.24	.....	.....	.....	tances, applied to the	
nd ....	.....	40.19.5	9.58.2	0.39.53	.....	.....	.....	Leven's Longitude of	
sion Is.	.....	.....	.....	.....	.....	.....	.....	Rio Janeiro, from which	
.....	.....	.....	.....	.....	.....	.....	.....	Capt H. measured them.	
COAST OF BRAZIL.									
o	Cathedral ..	.....	56.20.6	3.45.22	In Deg. & 10ths	h. m.	.....	Givry's Memoir.	
z d' }	Flag Staff ..	27.25.6	48.41.5	3.14.46	.....	.....	.....	Roussin's Mem. 1819	
im }	North Point ..	27.22.6	48.28.3	3.13.53	7.5	2.30	6	do. do.	
ne I ..	North Point ..	27.15.7	48.31.4	3.14.05	.....	.....	.....	do. Chart in.	
land ..	Point ..	27.08.5	48.36.9	3.14.27	.....	.....	.....	do. do.	
.....	Point Hill ..	26.47.2	48.45.4	3.15.01	.....	.....	.....	do. do.	
Isles ..	Southern one ..	26.21.0	48.40.4	3.14.41	.....	.....	.....	do. do.	
.....	N.E. Island ..	26.06.5	48.37.6	3.14.30	.....	.....	.....	do. do.	
.....	South Rock ..	25.50.2	48.34.6	3.14.18	.....	.....	.....	do. do.	
.....	.....	25.45.7	48.31.9	3.14.07	.....	.....	.....	do. do.	
Rock ..	.....	25.41.3	44.58.0	2.59.52	.....	.....	.....	Roussin's Memoir.	
Bay ..	I. do. Mel. South pt.	25.33.0	48.27.4	3.13.49	.....	.....	.....	do. Chart.	
.....	I. das Palmas ..	25.29.5	48.25.9	3.13.44	.....	.....	.....	do. do.	
ck ....	.....	25.22.0	48.11.4	3.12.46	.....	.....	.....	do. do.	
y	I. do. bom Abrigo ..	25.07.0	47.59.4	3.11.58	.....	.....	.....	do. do.	
unt	Summit ..	24.58.7	48.13.1	3.12.52	.....	.....	.....	Roussin's Memoir	
.....	Bar ..	25.03.0	48.01.4	3.12.06	7.0	.....	.....	do. do.	
.....	Point ..	24.33.0	47.19.9	3.09.20	.....	.....	.....	do. Chart.	
Burntl.	Largest ..	24.29.0	46.47.0	3.07.08	6.0	.....	.....	do. Memoir.	
.....	Inner ditto ..	24.21.5	46.56.4	3.07.46	.....	.....	.....	do. Chart.	
at	P. off it ..	24.24.0	47.08.4	3.08.34	.....	.....	.....	do. do.	
Village	Rock 7 m. E. by S. of it	24.12.9	46.47.0	3.07.08	6.0	.....	.....	do. Memoir.	
.....	Laage or Rock ..	24.18.0	46.18.9	3.05.16	.....	.....	.....	do. Chart.	
.....	Islet, Centre ..	24.04.4	46.13.2	3.04.53	.....	.....	.....	do. Memoir.	
.....	Barren R. Large Islet	24.06.2	45.47.0	3.03.08	.....	.....	.....	do. do.	

WESTERN COAST OF AFRICA.								
of Places.	Points.	Lat. North.	Long. West.	In Time	Vari- ation West.	H.W.	Rise in Feet.	Authorities and Remarks.
		° ' "	° ' "	h. m. s.	In Deg. & 10ths	h. m.		
River ...	Island St. Louis....	16.00.8	16.32.0	1.06.08				Roussin's Memoir.
.....	Entrance, North Pt.	15.55.3	16.32.7	1.06.11				do. do.
.....	Cape Extreme	14.44.5	17.32.0	1.10.08				do. do.
.....	Town	14.39.8	17.25.1	1.09.40				Leven in 1821.
al	Village	14.27.3	17.03.2	1.08.13				Leven in 1824.
.....	Town	14.11.0	16.49.5	1.07.18				Leven in 1821.
a River....	Bathurst T. Flag Staff	13.28.0	16.35.3	1.06.21	17.9	8.10	5.11	Do. 1826, Lieut. Owen
.....	Bird I. Flag Staff ..	13.39.2	16.40.5	1.06.42				do.
.....	.....	13.40.0	16.44.2	.....				Esk.
.....	St. Mary, Cape	13.30.2	16.41.4	1.06.46				Do. 1826, Lieut. Owen
.....	.....	13.29.0	16.45.2	.....				Esk.
.....	James Fort	13.19.7	16.22.2	1.05.29				Do. 1826, Lieut. Owen
.....	Tankrowell	13.25.0	16.03.8	1.04.15				do.
.....	Elephant I., W. pt. ..	13.26.5	15.20.6	1.01.22				do.
.....	Yamamaroo Town	13.42.0	14.58.5	0.59.54				do.
.....	M'Carthy's I., Ft. Geo.	13.33.0	14.45.5	0.59.02				do.
.....	Pisaneen	13.32.9	14.34.3	0.58.17				do.
ro River ..	Entrance	13.10.0	16.45.5	1.07.02				do.
— River ..	Bird Island	12.43.5	16.45.0	1.07.00				Admiralty Chart.
as, or Cas- za River }	Entrance	12.35.5	16.43.0	1.06.52				do.
.....	Cape	12.22.9	16.51.4	1.07.26				Leven in 1821.
's	Roxo Cape	12.20.5	16.45.8	1.07.03	18.0	6.30	14	Rotassin's M., C. Roxo
.....	Portuguese Fort.	11.51.0	15.37.1	1.02.28				Leven in 1826.
Islands ..	Papakawa Island ..	11.36.5	15.54.2	1.03.37				do.
.....	Arcass Island Centre	11.41.2	15.39.0	1.02.36				do.
.....	Rio Grande Bolola T	11.35.0	15.02.3	1.00.09				do.
.....	Bulama I. Beav. Est.	11.34.7	15.30.4	1.02.02		4.30	15	do.
.....	Bosses samé, or }	11.29.0	15.30.0	1.02.00				do.
.....	Tombelly N. Pt.	11.19.4	15.32.2	1.02.09				do.
.....	S. W. Point	11.27.7	15.46.5	1.03.06				do.
.....	Galina I, West Point	11.20.9	15.40.7	1.02.43				do.
.....	N. E. Hog. I, E. Pt.	11.10.2	15.48.2	1.03.13	17.4			do.
.....	Kanyabac I, S.W. Pt.	11.03.2	15.55.2	1.03.41				do.
.....	Orango I., Cape }	11.06.0	16.15.0	1.05.00				do.
.....	Cameleon, S.E. Pt. }	10.56.3	15.57.5	1.03.50				do.
nde Shoals.	S. Break. off Orango I.	11.31.5	16.52.0	1.07.28				Roussin's Chart.
.....	West Breakers	10.42.3	16.18.2	1.05.13				do.
.....	South Breakers	10.51.7	15.45.1	1.03.00	18.8			Leven in 1826.
Island ..	Southern	10.37.2	15.26.5	1.01.46				do.
z Island ..	Centre	10.30.0	15.10.0	1.00.40	17.0			do.
.....	Rocky, Centre	10.36.0	14.42.3	0.58.49	18.5			Adm. Chart uncert.
River	Entrance, Sandy I. ..	10.57.0	14.21.8	0.57.27				Lieut. Austin.
.....	Debucka Town	10.18.9	14.23.5	0.57.34				Roussin's Memoir.
.....	Cape	10.07.0	13.58.5	0.55.54				Adm. Chart uncert.
River	Entrance	9.53.0	13.22.0	0.53.28				Leven in 1826.
e	Highest Peak	9.27.4	13.48.5	0.55.14	18.0	6.35	13	17ft. Equinoxes, Lev.
s Los	Crawford I. Estab. ..	9.31.0	13.40.5	0.54.42				do. [1826
.....	Tamara I. North Pt.	9.28.0	13.51.8	0.55.27				do.
.....	West Point	9.26.5	13.51.0	0.55.24				Eden in 1827.
.....	South Point	9.14.0	13.25.5	0.53.42				17ft. Equinoxes, Lev.
ng Island..	Centre	8.55.2	13.17.5	0.53.10				do. [1826.
land	Do.	8.30.0	13.18.0	0.53.12	18.8		11½	do.
Leone	Cape Extreme	8.30.1	13.14.5	0.52.58				do.
.....	King Tom's Point ..	8.30.1	13.45.5	0.52.58	18.8	7.30	11½	Eden.
.....	Victualling Office ..	8.29.0	13.19.2	0.00.00				
.....	Cape	8.29.7	13.14.3	0.52.57				17ft. Equinoxes, Lev.
.....	Free Town Citadel. ..	8.25.8	13.17.8	0.53.11				do. [1826.
.....	False Cape, Extreme	8.09.5	13.10.2	0.52.41	20.2			do.
.....	Cape	8.05.8	13.16.2	0.53.05	19.3			do.
Islands ..	Highest Peak							

WESTERN COAST OF AFRICA.								
Places.	Points.	Lat. North.	Long. East.	In Time.	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
		°	'	h. m. s.	In Deg. & 10ths	h. m.		
of each }	Mouth	6.26.0	3.22.0	0.13.28	21.1			
	.....	6.20.0	4.27.0	0.17.48				
	North Point	5.46.1	5.03.5	0.20.14	19.0	4.15	8	Barracouta.
	Ditto	5.43.0	4.59.8	.....				Esk.
avos..	N. W. Point	5.34.2	5.12.0	0.20.48				Barracouta.
—	Ditto	5.34.0	5.05.8	.....				Esk.
Varrée	S. W. Point	5.20.5	5.19.4	0.21.18				Barracouta.
	Entrance	5.05.5	5.23.3	0.21.33				Barracouta in 1826.
	Cape	4.14.7	6.10.1	0.24.40				There is no distinct C.
	Ditto	4.28.0	5.50.0	0.23.20				Barracouta.
	.....	4.21.0	6.05.0	0.24.20				Pheasant.
	.....	4.20.0	5.40.8	.....				Esk.
	First River	4.21.0	5.53.8	.....				do.
	Second River	4.19.0	5.59.8	.....				do.
	Third River	4.19.0	6.09.8	.....				do.
	.....	4.22.0	6.49.8	.....				do.
R. ..	{ Fouché Pt., W. Pt.	4.22.7	7.00.0	0.28.00		5.0	9	Barracouta.
	{ Fouché Point	4.22.0	6.56.8	.....				Esk.
	{ Rough Cor., E. Pt.	4.23.7	7.07.0	0.28.28	20.7	5.0	9	Tide fl. in stream till 6 h.
	{ Rough Corner	4.26.0	7.03.8	.....				Esk.
R. ..	{ Tom Shots Pt.,	4.35.0	8.18.6	0.33.14				Barracouta.
	{ W. Pt.}	4.30.0	8.27.8	.....				Esk.
	{ East Head	3.57.0	9.13.8	.....				do.
l	West Point	4.28.7	8.40.0	0.34.40				Barracouta.
ount.	Highest	4.13.5	9.09.5	0.36.38				do.
on .....	.....	3.53.0	9.24.8	.....				Esk.
	River, S. W. Point	3.49.2	9.32.4	0.38.10	19.3			Barracouta.
e	Near Corisco Bay ..	1.09.7	9.18.7	0.37.15		5.0	7	do.
	Ditto	1.10.0	9.16.8	.....				Esk.
d	Cape Clara	0.30.5	9.17.5	0.37.10	19.0	5.0	17	Barracouta.
r	Round Corner	0.18.0	9.11.8	.....				Esk.
	South.							
er ..	Fiteesh Town	0.37.2	8.57.8	0.35.51				Barracouta.
	Cape	0.36.2	8.40.4	0.34.42	19.8			do.
	Ditto	0.36.0	8.34.8	.....				Esk.
y ..	Matooti Point	3.22.7	10.35.0	0.42.20	21.4			Barracouta in 1826.
	Entrance	4.39.5	11.42.1	0.46.48	20.6			do.
	Shark Point	6.04.6	12.12.5	0.48.50	21.7			do.
	Cape Ext. Bluff	8.45.1	13.11.7	0.52.46	21.0			Lev. & Barracou. 1825
	Island, North Point	8.46.2	13.09.3	0.52.37	22.0	4.30	6	do.
	{ St. Paul de Loando }	8.48.1	13.07.8	0.52.31				do.
	{ Town Flag Staff. }							
	Cape, Extreme Point	9.07.2	12.56.8	0.51.47				
	River, Entrance ..	9.19.5	13.07.0	0.52.28				Anonymous & uncert.
	Cape, Extreme	9.46.0	13.12.0	0.52.48				Lev. & Barracou. 1825
	Cape, ditto	10.01.5	13.16.8	0.53.07				do.
la .....	.....	11.36.7	13.44.7	0.54.59	22.0			do.
	St. Philip's Bonnet	12.34.4	13.14.1	0.52.56	22.0			do.
	Fort Flag Staff	12.33.9	13.20.0	0.53.20				do.
	Point, Extreme	12.53.0	12.53.2	0.51.33				No very distinct Pt.
	Islets	13.12.3	12.44.2	0.50.57	23.8			do.
	Cape, Pillar	13.25.2	13.31.8	0.54.07				do.
	Cape	13.54.2	12.23.5	0.49.34	22.6			do.
nt {	West of Little Fish }	15.13.0	12.02.0	0.48.08				do.
	Bay, Extreme							
	Cape, Pillar	15.40.7	11.53.3	0.47.33				do.
rt ..	Sand forming do. N. pt	15.47.0	11.46.5	0.47.06	23.0			do.
ay ..	Tiger Island, N. Pt.	16.30.2	11.41.0	0.46.44				No very distinct Cape.
	Cape, Extreme	18.23.0	11.57.2	0.47.49	24.0			do.

CAPTAIN OWEN'S TABLE OF LATITUDES AND LONGITUDES.

EASTERN COAST OF AFRICA.									
of Places.	Points.	Lat. South.	Long. East.	In Time.	Vari- ation West.	H.W.	Rise in Feet.	Authorities and Remarks.	
		°	°	h. m. s.	In Deg. & 10ths	h. m.			
the Wall..		32.03.22	28.56.01	1.55.44				Leven & Barraco	
ad	Extreme	31.48.4	29.09.51	1.56.38				do.	
lead	Extreme	31.44.0	29.13.51	1.56.54				do.	
River....	Entrance	31.34.5	29.23.71	1.57.35				do.	
pe	Extreme	29.53.0	30.57.22	2.03.49				do.	
River....	Mouth	29.16.3	31.28.02	2.05.52	27.0			do.	
Creek....	Mouth	29.09.6	31.35.52	2.06.22				do.	
l Point ..	Extreme	29.00.2	31.46.52	2.07.06	30.3			do.	
a Point ..	Extreme	28.32.5	32.22.52	2.09.30				do.	
— River	Entrance	28.26.0	32.21.52	2.09.26	27.8			do.	
pe	Extreme	28.09.6	32.33.02	2.10.12				do.	
's Blind Riv.	Entrance	26.55.5	32.47.82	2.11.11				do.	
Bay	Cape Colatto	26.04.0	32.55.82	2.11.43				do.	
—	Cape Inyack	25.58.0	32.56.62	2.11.46	25.0			do.	
hant Island	North Point	25.58.2	32.52.32	2.11.29				do.	
—	Reuben Point	25.58.8	32.33.52	2.10.14				do.	
reen Island	N.E. Point	25.52.0	32.41.82	2.10.47		4.40	12	do.	
Riv. Por- }	Flag Staff	25.58.2	32.31.72	2.10.07	25.5	5.20	12	do.	
e Factory }									
field Shoals	Northern	25.36.5	32.48.22	2.11.13				} Dist. off shore	
	Southern	25.39.0	32.49.72	2.11.19	26.0				
burn Shoals	Ex. off Elephant Island, North Pt. }	25.54.0	32.53.12	2.11.32				Leven & Barraco	
iver	Mouth	25.20.6	33.08.02	2.12.32	24.0			do.	
ira River ..	Mouth	25.11.6	33.26.52	2.13.46				do.	
— Shoals	North Extreme	25.10.0	33.41.02	2.14.44				do.	
— Do.	South Extreme	25.12.5	33.34.52	2.14.18				do.	
.....	Mouth	24.49.3	34.26.02	2.17.44	24.0			do.	
the Coast		24.30.0	35.11.02	2.20.44				do.	
es Cape ..	Small Rock	24.07.5	35.25.42	2.21.42				} Measured from St guistin's Bay, Cape rientes is 35°28'.5	
an	Town	23.51.7	35.19.72	2.21.19	22.3	4.15	10	Leven & Barraco	
—	Barrow Hill & Point	23.45.5	35.28.22	2.21.53	22.2			do.	
—	Bar, Mafouroon Id.	23.44.5	35.22.52	2.21.30	23.2	4.15	10	do.	
ay	Cape	22.56.2	35.36.02	2.22.24	22.0			do.	
ta Islands	North Point	21.31.0	35.28.02	2.21.52	23.0			do.	
ty's Shoal	Centre	20.42.5	35.05.22	2.20.21				do.	
n Island ..	North Point	20.38.2	34.48.52	2.19.14	23.0			do.	
.....	Fort	20.10.7	34.40.92	2.18.44	23.0	4.0	19	do.	
hoals	Centre	18.57.6	35.55.02	2.23.40				do.	
ane, or }	Point Tangalane ..	18.01.4	36.56.32	2.27.45	17.5			do.	
ezi River }									
.....	Town	17.51.8	36.56.02	2.27.44				do.	
.....	Senna Town	17.30.0	35.38.82	2.22.35				do.	
Shoals	Centre	17.31.5	38.27.22	2.33.49				do.	
Bank	Do.	17.18.0	38.46.32	2.35.05				do.	
and	Do.	17.14.4	38.50.32	2.35.21				do.	
Bank	Do.	17.11.8	38.54.32	2.35.37				do.	
sa or Raza I.	Do.	17.06.5	39.01.32	2.36.05				do.	
ron, Trees I.	Do.	17.04.3	39.04.82	2.36.19				do.	
ga Point ..	Extreme	16.58.8	39.01.22	2.36.05				do.	
ank	Centre	16.47.0	39.28.82	2.37.55				do.	
Point	Extreme	16.39.0	39.28.22	2.37.53				do.	
land	Centre	16.38.8	39.40.82	2.38.43				do.	
Is. Hurd I.	Centre	16.33.4	39.44.82	2.38.59				do.	
Michael Reef	Centre	16.31.0	39.49.82	2.39.19				do.	
cker Bank	Centre	16.26.2	39.52.82	2.39.31				do.	
int.	Extreme	16.24.6	39.51.32	2.39.25				do.	
al I.	Centre	16.20.5	39.58.82	2.39.55				do.	
River....	Entrance	16.16.0	39.52.02	2.39.28				do.	
's Shoals ..	Centre	15.46.7	40.22.82	2.41.31	16.6			do.	

EASTERN COAST OF AFRICA.									
Names of Places.	Points.	Lat. South.	Long. East.	In Time.	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.	
Attow	Extreme	2. 18. 7	40. 52. 5	2. 43. 30				Leven & Barraconta.	
.....	Town	2. 09. 2	40. 57. 2	2. 43. 49	11. 5	4. 00	4½	do.	
Atty .....	.....	2. 06. 2	41. 07. 2	2. 44. 29				do.	
Is. Kwyhoo	South Point	2. 02. 3	41. 11. 2	2. 44. 45				do.	
.....	Peak	2. 00. 0	41. 13. 0	2. 44. 52	11. 5			do.	
Simmbanya	Settlement	1. 45. 5	41. 26. 7	2. 45. 47				do.	
Sturford Port	North Point	1. 13. 2	41. 49. 1	2. 47. 16				do.	
Is. Island	Huts	1. 00. 0	41. 58. 2	2. 47. 53	11. 0			do.	
Is. Island	North Point	0. 50. 5	42. 07. 0	2. 48. 28				do.	
Is. Kismayoo	North Point	0. 36. 8	42. 16. 8	2. 49. 07				do.	
Is. Dedalus	Shoals	0. 24. 4	42. 38. 7	2. 50. 03				do.	
Juba River	Entrance	0. 14. 5	42. 34. 2	2. 50. 17				do.	
.....	North								
.....	Town	1. 06. 8	43. 58. 3	2. 55. 53	10. 0			do.	
.....	Straw Town	1. 26. 0	44. 16. 0	2. 57. 04				do.	
.....	Town	1. 44. 1	44. 46. 8	2. 59. 07				do.	
.....	Town	1. 50. 2	44. 55. 4	2. 59. 42				do.	
.....	Town	1. 53. 8	45. 02. 0	3. 00. 08				do.	
Is. sha	Town	2. 01. 8	45. 19. 5	3. 01. 18	9. 0			do.	
Is. hill	Peak	2. 41. 3	46. 12. 0	3. 04. 48				do.	
Is. road	Extreme	4. 34. 2	47. 55. 5	3. 11. 42				do.	
Is. ath	Extreme	5. 32. 8	48. 34. 8	3. 14. 19				do.	
Is. Khyle	Extreme	7. 43. 5	49. 40. 5	3. 18. 42				do.	
Is. bbere	Extreme	9. 29. 0	50. 45. 0	3. 23. 00				do.	
Is. bon	Extreme	10. 27. 8	51. 16. 7	3. 25. 07				do.	
Is. rdeea	Extreme	10. 34. 5	50. 56. 0	3. 23. 44	6. 0			do.	
Is. na	Extreme	11. 12. 4	51. 06. 0	3. 24. 24				do.	
Is. on, or lafui	Extreme	11. 41. 4	51. 12. 4	3. 24. 50				do.	
Is. ere	Extreme	11. 48. 8	51. 14. 5	3. 24. 58				do.	
Is. it	Extreme	11. 55. 2	50. 51. 6	3. 23. 26				do.	
Is. Koory Island	West Point	12. 12. 6	52. 02. 8	3. 28. 11	4. 6			do.	
.....	N.E. Point	12. 11. 5	52. 18. 0	3. 29. 12				do.	
Is. bite Rocks	Centre	12. 25. 5	52. 04. 2	3. 28. 17				do.	
Is. Durjy I.	Centre	12. 06. 0	53. 02. 8	3. 32. 11	4. 0			do.	
Is. naong Island	Centre	12. 10. 8	52. 51. 0	3. 31. 24				do.	
Is. baroon rcks. ....	.....	12. 39. 8	52. 57. 0	3. 31. 48				do.	
Is. Ras Rarby	West Point	12. 30. 0	53. 03. 5	3. 32. 14				do.	
Is. anseea Road	N.E. Point	12. 43. 0	53. 18. 2	3. 33. 13				do.	
Is. Pyramid	Rock	12. 44. 3	53. 22. 0	3. 33. 38	3. 5			do.	
Is. Tamarin	Town	12. 36. 7	53. 41. 0	3. 34. 44				do.	
Is. as Shoorguy	East End	12. 31. 2	54. 27. 2	3. 37. 49				do.	
EASTERN COAST OF ARABIA.									
Names of Places.	Points.	Lat. South.	Long. East.	In Time.	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.	
Is. rebat	Extreme	16. 55. 0	54. 42. 8	3. 38. 51				Leven & Barraconta.	
Is. gera	Extreme	17. 06. 8	55. 02. 0	3. 40. 08	2. 3			do.	
Is. s.	Extreme	17. 23. 0	55. 10. 5	3. 40. 42				do.	
Is. Moor. I. Tibly	Peak	17. 26. 4	56. 16. 0	3. 45. 04				do.	
Is. Hasky	Peak	17. 29. 5	55. 30. 0	3. 42. 00	3. 6			do.	
Is. Soda	Peak	17. 28. 0	55. 49. 0	3. 43. 16				do.	
Is. Hallany	N.E. Point	17. 31. 3	56. 00. 0	3. 44. 00				do.	
Is. wow	Extreme	17. 51. 8	56. 16. 2	3. 45. 05	2. 9			do.	
Is. Cape	Cape	18. 09. 0	56. 30. 0	3. 46. 00				do.	
Is. Iraka	Extreme	18. 58. 0	57. 45. 5	3. 51. 02				do.	
Is. kaas	Extreme	19. 10. 2	57. 41. 3	3. 50. 45				do.	
Is. Abou Rass.	South Point	20. 07. 6	58. 33. 0	3. 54. 12	0. 9			do.	
Is. Ras Ya	East Point	20. 30. 0	58. 51. 6	3. 55. 26				do.	
Is. Alif or Hul	North Point	20. 40. 2	58. 48. 6	3. 55. 14				do.	
Is. h	Extreme	21. 25. 8	59. 06. 5	3. 56. 26				do.	
Is. Lubba	Extreme	22. 14. 5	59. 44. 3	3. 58. 57				do.	
Is. s	Extreme	22. 26. 0	59. 46. 3	3. 59. 05				do.	

ISLAND OF MADAGASCAR, WESTERN COAST.									
Places.	Points.	Lat. South.	Long. East.	In Time	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.	
		° / ' / "	° / ' / "	h. m. s.	In Deg. & 10ths	h. m.			
Bay.	Nos Vey or Sandy I.	23.38.4	43.33.2	22.54.13			13	Leven & Barracouta.	
	Tent Rock	23.35.4	43.40.5	22.54.42	20.8	4.30	13	do.	
Bay.	North Point	22.12.5	43.12.7	22.52.51	20.8			Barracouta.	
Island.	Centre	22.05.3	43.10.2	22.52.41				do.	
Island.	Centre	21.57.6	43.11.2	22.52.45		4.45	12	do.	
	Cape	21.54.4	43.15.2	22.53.01				do.	
		20.18.3	44.14.2	22.56.57	18.7			do.	
Is.	South Sand	18.41.4	43.53.2	22.55.33	17.8			do.	
	South Island	18.33.9	43.51.0	22.55.24				do.	
	North Island	18.18.1	43.41.4	22.54.46	16.9	4.45	12	do.	
	North Sand	18.03.3	43.48.5	22.55.14				do.	
	West breakers off do	18.16.2	43.38.5	22.54.34				Leven & Barracouta.	
Is.	Centre	17.29.0	43.42.0	22.54.48	18.0			Barracouta.	
	Cape	16.11.4	44.25.8	22.57.43				do.	
Entr.	North Point	15.59.0	45.18.2	23.01.13		4.30	15	do.	
Bay	Point	15.42.9	46.15.2	23.05.01	15.0			Leven & Barracouta	
	Extreme	15.46.7	45.38.0	23.02.32				Barracouta.	
land.	Centre	15.42.0	45.52.4	23.03.30	12.0	4.45	17	do.	
Entr.	West Point	15.11.7	46.54.2	23.07.37		4.30	16	do.	
Entr.	West Point	14.40.3	47.21.3	23.09.25	12.0			do.	
	Entrance	14.36.9	47.37.9	23.10.32		4.30	15	do.	
nd.	North Point	14.30.7	47.30.0	23.10.00				do.	
ay	M'Cleur Point	14.15.0	47.44.0	23.10.56	13.0			do.	
ween									
ma &		13.59.0	47.53.2	23.11.33				do.	
Bay	Nine Pin Island	13.28.2	48.09.8	23.12.39	12.5	5.00	15	do.	
nd.	North Point	13.12.2	48.13.5	23.12.54				do.	
ay	Mouth	13.30.0	47.56.5	23.11.46				do.	
Island	North Point	13.18.5	48.24.3	23.13.37				do.	
d	North Point	12.49.5	48.33.8	23.14.15	12.0	5.00	15	do.	
	Cape	12.26.2	48.40.6	23.14.42				do.	
d	Centre	12.16.7	48.36.0	23.14.24				Leven & Barracouta.	
l	Centre	12.13.2	48.44.2	23.14.57	12.0			do.	
l	Centre	12.12.0	48.50.0	23.15.20				do.	
nd.	Centre	12.09.3	48.56.0	23.15.44				do.	
Entrance	North Point	12.03.3	49.06.2	23.16.25				dp.	
Port	North Point	12.00.7	49.08.2	23.16.33				do.	
Port	North Point	12.01.6	49.07.5	23.16.30				do.	
ISLANDS, &c. IN THE MOZAMBIQUE CHANNEL.									
		° / ' / "	° / ' / "	h. m. s.	In Deg. & 10ths	h. m.			
Id	Centre	22.22.5	40.19.0	22.41.16	23.0			Leven. Sometimes called Bassas da India.	
dia	East Point	21.29.0	39.35.5	22.38.22	21.9			Sometimes called Europa Rocks.	
	N. W. Point	21.26.5	39.27.5	22.37.50				Leven & Barracouta.	
na	Centre	17.03.5	42.42.3	22.50.49				do.	
Bank	Centre	16.17.5	43.50.4	22.55.22				do.	
k	Extreme	12.43.5	47.41.5	23.10.46	15.0			do.	
	Extreme	12.21.8	47.52.2	23.11.28				do.	
Bank	Centre	12.24.0	48.20.0	23.13.20				do.	
Mohilla	North Point	12.36.0	45.06.5	23.00.26	12.5			Admiralty Charts.	
	East Point	12.20.0	43.55.5	22.55.42				do.	
Mohanna	Town	12.11.0	44.22.3	22.57.29				Leven.	
	Highest Peak	12.13.5	44.24.3	22.57.37				5,900 feet high.	
ro Id	N.E. Point	11.19.5	43.34.0	22.54.16				Admiralty Charts.	
	S.E. Point	11.54.0	43.28.0	22.53.52				Leven.	
	S.W. Point	11.55.0	43.22.0	22.53.28				Admiralty Charts.	
nds	Isle Glorieuse	11.34.8	47.19.0	23.09.16	13.0			Leven.	

8. ARCHIPELAGO NORTH-EAST OF MADAGASCAR.

Names of Places.	Points.	Lat. South.	Long. East.	In Time.	Variation West.	H. W.	Rise in Feet.	Authorities and Remarks.
Roderigue	Centre	19. 41. 0	63. 20. 0	4. 13. 20	In Deg. & 10ths	h. m.	6	Admiralty Charts. Leven & Barracouta. { Admi. } Andromache { Charts } & De la Caille. { Admi. } Charts Leven in 1824.
St. Denis, I. of France	Cooper's Island ..	20. 10. 0	57. 26. 8	3. 49. 51				
— Round I. ....	.....	19. 50. 5	57. 45. 0	3. 51. 00			
— Brabant Cape .....	.....	20. 27. 0	57. 14. 0	3. 48. 56			
St. Denis, I. of France	Town	20. 52. 5	55. 26. 5	.....			

9. COAST OF MALABAR.

		North.	° ' "	h. m. s.	In Deg. & 10ths	h. m.		
Ice Rock	Centre	11. 30. 0	75. 16. 8	5. 01. 07	0. 2 E			Leven in 1823. 34. 0
Shore	Flag Staff	11. 57. 0	75. 07. 3	5. 00. 29	0. 3 W		do.	34. 0
St. Dilly	Summit	11. 59. 0	74. 58. 3	4. 59. 53	0. 3 W		do.	33. 0
Malore	Flag Staff	12. 50. 5	74. 36. 7	4. 58. 27	1. 7 E		do.	30. 3
Y Rocks	Centre	13. 11. 0	74. 24. 7	4. 57. 39			do.	
St. Mary's Islets	Centre	13. 22. 5	74. 20. 8	4. 57. 23	1. 5 E		do.	
St. John Island	Centre	14. 02. 5	74. 15. 7	4. 56. 23	0. 7 W		do.	15. 0
St. John Cape .....	.....	15. 05. 0	73. 45. 1	4. 55. 00	0. 7 E		do.	21. 0
St. John Rocks	Western	15. 51. 0	73. 16. 8	4. 53. 07			do.	
St. John ndy	Flag Staff	16. 03. 0	73. 17. 2	4. 53. 09	0. 7		do.	
St. John a Geriah	Flag Staff	17. 02. 0	72. 54. 8	4. 51. 39	0. 2		do.	30. 7
St. John ur	Point	17. 16. 0	72. 53. 8	4. 51. 35	1. 0		do.	23. 7
St. John	Point	17. 25. 0	72. 52. 8	4. 51. 31			do.	
St. John ndroog	Flag Staff	17. 47. 5	72. 50. 8	4. 51. 23	1. 0		do.	
St. John oot	Fort and Point	17. 57. 0	72. 43. 8	4. 50. 55		11. 00	11	do.
St. John ore	North Point	18. 16. 0	72. 50. 8	4. 51. 23	1. 0	11. 00	12	do.
St. John ay	Flag Staff	18. 55. 8	72. 46. 3	4. 51. 05	1. 0	11. 00		do.
St. John	Castle .....	.....	70. 55. 7	4. 43. 43				do.

Note.—The Latitudes in this Table are inserted from Mr. Horsburgh's Directory, and the Longitudes are here marked, as observed on board the Leven; but as their determination was not at that time the particular object of her voyage, they do not perhaps merit the same degree of confidence as those in the other parts of the Table.

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angles (Euclid, Book I., Prop. 13); and we have just seen that the sum of the two opposite angles DEB and DAB is equal to two right angles: therefore, $DEF + DEB$ is evidently equal to $DEB + DAB$: from each of these equals take away the common angle DEB , and then the remaining angle DEF will be manifestly equal to the remaining angle DAB ; for, if equals be taken from equals, the remainders are equal.

Now, since it has been demonstrated that the angle ABD is equal to the angle DFE ; and that the angle DAB is equal to the angle DEF ; and since the side AD , of the triangle ADB , is equal to the side DE of the triangle DEF ; and, moreover, since the angles at the base AB are respectively equal to the angles at the base EF ; therefore the remaining angle ADB of the one is equal to the remaining angle EDF of the other; and they are right angles, because ADB is an angle in a semicircle. (Euclid, Book III., Prop. 31.)

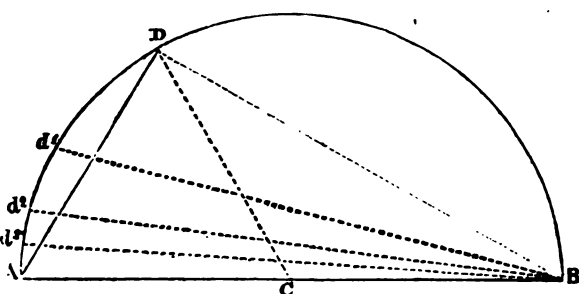
But when two sides and the contained angle of one triangle are respectively equal to two sides and the contained angle of another triangle, the remaining or third side of the one is equal to the remaining or third side of the other. (Euclid, Book I., Prop. 4.) Therefore, the side EF is equal to the side AB ; consequently the two triangles ADB and EDF are identically equal in every respect.

Having thus demonstrated that the side EF is equal to the side AB , the above proportion, viz., as $BC : BD :: BD : BF (= BE + EF)$, becomes, as $BC : BD :: BD : 2BC + BE (= AB + BE = BE + EF)$. Then, by taking the rectangles of the extremes, it will be $2BC + BE \times BC = BD^2$; but since the radius BC is unity or 1, and that multiplying by 1 is useless; there the expression becomes $2BC + BE = BD^2$,—or $\sqrt{2BC + BE} = BD$, in which $2BC = AB = EF$. Wherefore, if the measure of the supplemental chord of any arc of a circle, whose radius is unity or 1, be increased by the number 2, or the value of the diameter, the square root of the sum will express the correct measure of the supplemental chord of half that arc. Thus, if AD be bisected, then $\sqrt{BD + 2} =$ the supplemental chord of the bisection adjacent to the diameter AB .

As the arcs AD and DEB make a semicircle, they are the supplements of one another, and therefore if the arc AD be taken as $\frac{1}{6}, \frac{1}{12}, \frac{1}{24}$ &c. of the circumference, the line BD becomes the supplemental chord of that arc.

Now, from the above theorem we can readily find the true ratio which the circumference of a circle bears to its diameter.

Let the arc AD , in the annexed diagram, be taken equal to the radius unity or 1, and it will be the side of a hexagon inscribed in a circle. (Euclid, Book IV., Prop. 15.) Draw BD and it will be the supplemental chord of AD . Let the side of the hexagon AD be bisected successively, as Ad^1, Ad^2, Ad^3 &c., as far as convenient; in this instance we will extend it to the twelfth bisection, or Ad^{12} , which will reduce the



circle to a regular polygon, consisting of 24576 sides: that is, it will express the side of a polygon equal to the 24576th part of the circumference of a circle whose radius is unity or 1. Join Bd^1, Bd^2, Bd^3 , &c., and they will be the supplemental chords of the arcs of those bisections.

Now, since the radius AC or BC is unity, consequently the diameter AB is 2; and since AD is equal to the radius, and that the triangle ADB is rectangular (Euclid, Book III., Prop. 31),—Therefore, in the right-angled triangle ADB , the hypotenuse AB , and the leg AD are given, to find the leg BD : hence, by Euclid, Book I., Prop. 47,— $\sqrt{AB^2 - AD^2} = BD =$ the supplemental chord of the arc AD of the one-sixth part of the circumference. Then, working agreeably to the theorem, it will be $\sqrt{2 + BD} = Bd^1$; $\sqrt{2 + Bd^1} = Bd^2$; $\sqrt{2 + Bd^2} = Bd^3$, &c. &c. Thus by numbers.

Since $AB = 2$, and $AD = 1$; therefore the square of $AB = 4$, and that of $AD = 1$; then, $4 - 1 = 3$; and $\sqrt{3} = BD = 1.732050807568877293527446341506$, &c. &c. = the measure of the supplemental chord of AD . To this add 2, and the sum will be

$\div 2 = 3.14159266642394689536$, is the correct circumference of a circle whose diameter is 1.—And since this coincides with the perimeters of its inscribed and circumscribed polygons, to the ten-millionth decimal place; therefore, 3.14159266 is the true *ratio of the circumference of a circle to diameter unity* or 1.

Having thus found the ratio of the circumference of a circle to diameter unity, we have only to determine a few of the natural sines; and if these agree with the natural sines deduced geometrically from the circle;—then, we shall have a very satisfactory and conclusive proof that the ratio of the circumference of a circle to its diameter is as above stated.

Since the diameter of the trigonometrical circle is 2; therefore, $3.14159266 \times 2 = 6.28318532$, is the circumference of the circle used in the trigonometrical canon. And since the circumference of all circles contains 360 degrees, or 21600 minutes; therefore, $6.28318532 \div 21600 = 0.0002908882$ is the chord of the arc of 1 minute; but since the chord of so small an arc as one minute of a degree, and which is adapted to a radius so exceedingly minute as to be only the ten thousand millionth part of unity, or 1 line (this is the *true radius of the trigonometrical canon*), is physically equal to its sine; therefore, the natural sine of 1 minute is 0.0002908882. Now, having thus found the value of one minute, the natural sines of every minute in the quadrant may be readily obtained by the following formula, viz. :—

From twice the sine of the mean arc betwixt any two equidistant extremes subtract the sine of the given extreme, and the remainder will be the sine of the other extreme,* as thus :—

To find the sine of 2 minutes.

Sine of $1' = .0002908882 \times 2 = .0005817764$
Subtract the sine of $0' = .0000000000$

The sine of 2 minutes = .0005817764

To find the sine of 4 minutes.

Sine of $3' = .0008726646 \times 2 = .0017453292$
Subtract the sine of $2' = .0005817764$

The sine of 4 minutes = .0011635528

To find the sine of 3 minutes.

Sine of $2' = .0005817764 \times 2 = .0011635528$
Subtract the sine of $1' = .0002908882$

The sine of 3 minutes = .0008726646

To find the sine of 5 minutes.

Sine of $4' = .0011635528 \times 2 = .0023271056$
Subtract the sine of $3' = .0008726646$

The sine of 5 minutes = .0014544410

Proceeding in this manner, the natural sine of 1 degree will be found to be .0174524; the natural sine of 15 degrees, .2588190; the natural sine of 30 degrees, .5000000; that of 45 degrees, .7071068; that of 60 degrees, .8660254; that of 75 degrees, .9659258; and that of 90 degrees, 1.0000000.

Now, having found the sines of those arcs, let us see whether they coincide with the sines of similar arcs, which flow *naturally* from the geometrical properties of the circle; and, if so, it will be a direct mathematical proof that the preceding ratio of the circumference of a circle to diameter unity has been truly determined.

Let the circumference of the circle in the following diagram be described with the radius of 10000, taken from any scale of equal parts; and let it be graduated to every tenth degree.—

From the points 80, 70, 60, &c. in the semi-circle A B S, draw the vertical parallels 80, 70, 60, &c., meeting the semi-diameter C B in the points 8, 7, 6, &c.—And from the points 10, 20, 30, &c. in the semi-circle R A B, draw the horizontal parallels 10, 20, 30, &c., meeting the radius C A in the points 8, 7, 6, &c.; then, the former will represent the *natural sines*, and the latter the *natural co-sines* of those parallels.

The sines and co-sines thus determined, are denominated *natural*, because they flow naturally from the circle without the intervention of art.

If the radius C A (= C B) of 10000 equal parts be taken from any good-sized diagonal scale, the measure of the natural sines and co-sines, thus flowing from the circle, will be found to agree (as near as can be expected from projection) with the natural sines and co-sines given in the common Trigonometrical Tables.

Thus, in the quadrant A B, the extent from 30 to 3, or the sine of 30 degrees, is .5000; and from 30 to 6, the co-sine of 30 degrees is .8660. The extent from 45 to 1 = the sine of 45 degrees is .7071; that from 45 to 6, or the co-sine of 45 degrees, is also .7071. The extent

* See the last paragraph in page 54, Volume I.

FH = the sine of 30 degrees:—but Ru is equal to half the radius; therefore, FH , the sine of 30 degrees, is also equal to half the radius = RK .—Now, since the radius is expressed by unity, or 1.0000000, its half, $RK = Ru = FH$, is 0.5000000; which, therefore, is the correct measure of FH , or the natural sine of 30 degrees.

Having thus found the sine of 30 degrees, its co-sine may be readily determined; for, in the right angled triangle CHF , the hypotenuse CF , and the leg FH , are given; to find the leg CH = the co-sine of 30 degrees.* Hence,—

$$CF^2 \text{ or } 1.0000000^2 = 1.0000000000000$$

$$FH^2 \text{ or } .5000000^2 = .2500000000000$$

Difference of squares = 0.7500000000000; the root of which is $CH = 0.8660254$, which is the natural co-sine of 30 degrees; or the natural sine of 60 degrees: for, since the two triangles, CDK and CFH , are identically equal in every respect; therefore, the leg DK of the one, is equal to the leg CH of the other. Hence DK , or the sine of 60 degrees, is 0.8660254.

Again.—In the triangle RHF , the legs FH and RH are given; to find the hypotenuse RF . Thus,—

$$CR - CH = RH^2 (1 - .8660254) = .1339745^2 = 0.01794916665025$$

$$FH^2 \text{ or } 0.5000000^2 = \dots\dots\dots 0.2500000000000$$

Sum of the squares = $\dots\dots\dots 0.26794916665025$; the root of which is $RF = 0.5176381$; but since this is the chord of the arc, or the length of the side of the polygon RF ; therefore its half, or 0.2588190, is the measure of Gv , or the natural sine of 15 degrees; from which its co-sine, or the sine of 75 degrees, may be obtained; as thus:—

In the right angled triangle CvG , the hypotenuse CG and the leg vG are given; to find the leg Cv , the co-sine of 15 degrees, or the sine of 75 degrees. Hence,—

$$CG^2 = 1.0000000^2 = 1.0000000000000$$

$$Gv^2 = 0.2588190^2 = 0.06698727461000$$

Difference of squares = 0.93301272539000; the root of which is $Cv = 0.9659258$, which, therefore, is the natural co-sine of 15 degrees, or the natural sine of 75 degrees.

Now, on taking a comparative view of the values of the sines which flow from the circle, both naturally and geometrically, it will be found that they exactly correspond in every respect with the sines deduced from the ratio of the circumference of the circle to diameter unity; and, therefore, we have an unquestionable proof that the ratio deduced from a polygon of 24576 sides is 3.14159266, as particularly specified in page 665.

Remark.—If the bisection of the side of the hexagon AD , (see diagram, and the succeeding paragraph in page 663,) be continued to the *sixteenth place*, or AD^{16} ; it will reduce the circle to a regular polygon of 393216 sides; and since the more the sides are multiplied, the nearer will the polygon approach to a perfect circle; therefore, if the ratio of the circumference of the circle to its diameter be deduced from its inscribed and circumscribed polygons of 393216 sides, according to the principles laid down in pages 663 and 664, it will approximate to a still closer degree of exactness. In this case, the eighth decimal place will come out a 5 instead of a 6, thus making the ratio 3.14159265; and this is the ratio that is made use of in the miscellaneous problems at the end of the first Volume.

Now, from the ratio thus established we can easily deduce several useful recurring numbers, as in the following articles:—

1.—*To find the value of the Arc which is equal to the radius of the Circle.*

Since the circumferences of all circles are to each other as their diameters, and that the diameter of the circle used in the trigonometrical canon is 2; therefore, the circumference of that circle is 6.28318530:—hence its semi-circumference is 3.14159265, and its radius unity or 1. Now, since the semi-circumference of every circle is equal to 180 degrees; therefore, $180^\circ \div 3.14159265 = 57^\circ.2957795$ is the value of the arc, which is equal to the radius.—Or, let 180° be reduced to thirds; then $3888000''' \div 3.14159265 = 57^\circ.17'.44''.48'''$, is the value of the arc in different denominations that is equal to the radius.

* See the first paragraph in page 54, vol. i.

6.—To find the side of a Tetragon or Square that is equal in area or superficies to a Circle whose diameter is unity or 1.

The area of a circle whose diameter is unity is 0.7853981625, as shown in Article 3.—Now, the square root of that area is 0.8862269; which, therefore, is the side of the square that is equal in area to a circle whose diameter is unity or 1. And, because the sides of tetragons, or squares, are as the diameters of their circumscribing circles; therefore, the product of the diameter of any circle by 0.8862269, will be the side of the square that is equal in area to such circle. Hence, if the radius of a circle be unity, or 1, its diameter will be 2; and, therefore, $0.8862269 \times 2 = 1.7724538$, is the side of a square that is equal in area to a circle whose radius is unity or 1. And because the sides of tetragons are as the diameters of their circumscribing circles; they are also as the radii or semidiameters of those circles. Hence, if the semidiameter of a given circle be multiplied by 1.7724538, the product will be the side of the square that is equal in area to the given circle.

7.—To find the Side of a Tetragon or Square inscribed in a Circle, the radius, or semidiameter, of which is unity or 1.

In the diagram, page 668, if the diameter of the circle be 2; its semidiameter, A C, or B C, will be unity, or 1. join A B, and it will represent the side of the inscribed tetragon, or square. Then (by Euclid, Book I., Prop. 47), $A C^2 + B C^2 = A B^2$. Hence, $1 \times 1 + 1 \times 1 = 2$; the square root of which is 1.41421356, and which, therefore, is the side of the tetragon inscribed in a circle whose radius or semidiameter is unity or 1.—Now, since the sides of tetragons, or squares, inscribed in circles are as the radii or semidiameters of those circles; therefore, if the semidiameter of any circle be multiplied by 1.41421356, the product will be the side of the tetragon inscribed in such circle:—hence, if the diameter of a circle be 1, its radius will be 0.5; then, $1.41421356 \times 0.5 = 0.70710678$, is the side of a tetragon, or square, inscribed in a circle whose diameter is 1.

8.—To find the Radius that will circumscribe a Square which is equal in area to a Circle whose semidiameter is unity or 1.

In the diagram page 668, let the radius or semidiameter of the circle be unity; then, the side of the inscribed square A B, found by Article 7, will be 1.41421356.—Now, the side of the square D E, which is equal in area to a circle whose radius is unity, or 1, is 1.7724538, as shown in Article 6:—hence, by similar triangles (Euclid, Book VI., Prop. 4),—As A B : B C :: D E : E C; that is, as 1.41421356 : 1 :: 1.7724538, to 1.2533142; which, therefore, is the value of the side E C, or the radius that will circumscribe the tetragon, or square, which is equal in area to a circle whose semidiameter is unity, or 1. And since the radii of circles are as the sides of their inscribed tetragons, therefore, if the semidiameter of any given circle be multiplied by 1.2533142, the product will be the length of the radius that will circumscribe the square which is equal in area to such given circle.

Note.—As the radius B C is 1, and the radius E C 1.2533142; the difference = E B is therefore 0.2533142; and as this difference approximates to a fourth part of the radius B C = unity or 1; we thus see the reason why mechanics in squaring a circle always augment its semidiameter by the one-fourth part of its value.

9.—To Square the Circle.

The squaring of a circle, or *tetragonism*, is a subject that has frequently engaged the attention of the ablest mathematicians, ever since the days of the celebrated *Archimedes*, who was killed, at the storming of Syracuse, by the Romans, in the year 212 before the birth of Christ.

The reduction of a circle to a perfect geometrical square amounts to a mathematical impossibility; for, let the bisection of the side of the hexagon A D (see the diagram, page 663) be extended so far as to make the polygon consist of millions of sides; still, in extracting the square root of the last term, there will always be a remainder, or a visible fractional part of unity.—Hence, the ratio which the circumference of a circle bears to its diameter cannot be exactly determined; and therefore it is mathematically impossible to construct a square that shall be exactly equal in area to a given circle. However, although the perfect squaring of the circle is likely to remain for ever as a *desideratum*; yet, since the ratio of the circumference of the circle to its diameter is known to a very rigid degree of approximation; therefore a circle may be squared by means of that ratio to the utmost extent of any assignable point of exactness that can come within the range of geometrical and mechanical operations, as may be seen in the following example, viz.,—

